

# Operator's Handbook for Nonfederal Oil and Gas Development in Units of the National Park System



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## INTRODUCTION

The NPS has developed this handbook to help existing and prospective nonfederal oil and gas operators in units of the National Park System to:

- understand and follow the NPS regulations at 36 CFR Part 9 Subpart B, and
- prepare a "plan of operations" under the regulations.

Petroleum development in parks most often occurs where entities other than the federal government own the rights to the oil and gas. Individuals, corporations, state or local governments, Indian tribes, or native corporations may own these "nonfederal" rights. In some cases, the holder of oil and gas rights on a tract of land in a park may own both the surface and mineral estate. However, most often when the park was established the United States acquired the surface estate and left the mineral estate in private or state ownership.

The NPS must recognize nonfederal mineral rights in park units. It must also fulfill Congress' mandate to leave park resources and values unimpaired for the enjoyment of future generations.<sup>1</sup> In rare instances where nonfederal oil and gas activities would prevent the NPS from meeting this mandate, the federal government will seek to acquire the mineral interest.

Congress granted the NPS authority to issue regulations as needed to protect National Park System lands and waters.<sup>2</sup> The NPS issued regulations for nonfederal oil and gas operations on December 8, 1978. The regulations commonly known as the "9B Regulations" are found at Title 36 of the Code of Federal Regulations, Part 9, Subpart B. Appendix A is a copy of the 9B regulations.

## USE OF THIS HANDBOOK

Operators should first familiarize themselves with the NPS regulations (Chapter 1 and Appendix A) and the 9B permitting process (Chapter 2). Operators can then focus on the following chapter(s) relating to the type of activities planned:

- |   |   |
|---|---|
| CH. 3 - Geophysical Exploration,            | CH. 7 - Well Plugging and Surface         |
| CH. 4 - Drilling and Production Operations, | Reclamation,                              |
| CH. 5 - Directional Drilling Operations,    | CH. 8 - Transpark Pipelines, and          |
| CH. 6 - Existing Operations,                | CH. 9 – 9B Flowlines and Gathering Lines. |

Chapters 10, 11, and 12 cover performance bonds, spill control plans, and operator liability. These topics apply to all new oil and gas operations in units of the National Park System.

<sup>1</sup> The Organic Act [16 U.S.C. §§ 1 *et seq*] orders the NPS "...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner...as will leave them unimpaired for the enjoyment of future generations." Thus, the NPS's greatest responsibility is to protect the important natural, historical, and recreational qualities in each and every unit of the National Park System. At the same time, the NPS needs to give park visitors the proper opportunities to enjoy those resources.

<sup>2</sup> AUTHORITY: Act of August 25, 1916, 39 Stat. 535 (16 U.S.C. § 1, *et seq.*); and the acts establishing the units of the National Park System, including but not limited to: Act of October 11, 1974, 88 Stat. 1254 (16 U.S.C. §§ 698-698e); Act of Oct. 11, 1974, 88 Stat. 1258 (16 U.S.C. §§ 698 f- 698m); Act of Sept. 28, 1962, 76 Stat. 650 (16 U.S.C. §§ 459d –459d-7); Act of Nov. 10, 1978, 92 Stat. 3534 (16 U.S.C. §§ 230-230a); Act of Mar. 7, 1974, 88 Stat. 43 (16 U.S.C. § 460ee).

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## ACRONYMS

**19jj** – Park System Resource Protection Act  
**9B** – Nonfederal Oil and Gas Rights Regulations (36 CFR 9B)  
**9B Regulations** – Nonfederal Oil and Gas Rights regulations (36 CFR 9B)  
**ACHP** – Advisory Council on Historic Preservation  
**ARPA** – Archeological Resources Protection Act  
**CAA** – Clean Air Act  
**CERCLA** – Comprehensive Environmental Response, Compensation, and Liability Act  
**CFR** – Code of Federal Regulations  
**CLPR** – Current Legal and Policy Requirements  
**COE** – U.S. Army of Corps of Engineers  
**CZMA** – Coastal Zone Management Act  
**DEIS** – Draft Environmental Impact Statement  
**DO-12** – NPS Director’s Order 12 and Handbook  
**DO-28** – NPS Director’s Order 28 – NPS Cultural Resources Management Guidelines  
**DO-77-1** – Director’s Order 77-1, Protection of Wetlands  
**EA** – Environmental Assessment  
**EIS** – Environmental Impact Statement  
**EO** – Executive Order  
**EPA** – Environmental Protection Agency  
**ESA** – Endangered Species Act  
**FIFRA** – Federal Insecticide, Fungicide, and Rodenticide Act  
**FLPMA** – Federal Land Policy and Management Act  
**FONSI** – Finding of No Significant Impact  
**FWS** – U.S. Fish and Wildlife Service  
**MBTA** – Migratory Bird Treaty Act  
**NAGPRA** – Native American Graves Protection and Repatriation Act  
**NEPA** – National Environmental Policy Act  
**NHPA** – National Historic Preservation Act  
**NMFS** – National Marine Fisheries Service  
**NPS-66** – NPS Minerals Management Guidelines  
**NPS-77** – NPS Natural Resources Management Guidelines  
**OPA** – Oil Pollution Act  
**RCRA** – Resource Conservation and Recovery Act  
**ROD** – Record of Decision  
**SOF** – Statement of Findings  
**SPCCP** – Spill Prevention Control and Countermeasure Plan  
**SUP** – Special Use Permit  
**T&E** – Threatened and Endangered Species  
**U.S.C.** – U.S. Code  
**§** – section

# **CHAPTER 1**

## **KEY PROVISIONS OF THE NATIONAL PARK SERVICE NONFEDERAL OIL & GAS RIGHTS REGULATIONS**

### **INTRODUCTION**

The National Park Service regulations at 36 CFR Part 9, Subpart B (“9B regulations”) are a park superintendent’s primary tool in protecting park resources from potentially adverse impacts associated with the exercise of nonfederal oil and gas rights. To assess and manage these potential impacts, the 9B regulations require that an operator submit a plan of operations to the NPS describing all of the activities that an operator intends to perform. In that plan the operator submits critical information, including a site reclamation plan, and a suitable performance bond. The NPS reviews the operator’s plan to make sure that the information in the plan is complete and, in turn, to ensure the plan’s adequacy to protect park resources. Once the NPS has completed its review and environmental compliance responsibilities, it approves the operator’s plan. The plan serves as the operator’s permit to conduct operations within a park unit.

Below is a summary of key provisions of the 9B regulations. Appendix A includes a reprint of the 36 CFR 9B regulations.

### **GOALS OF THE REGULATIONS**

The 9B regulations ensure that oil and gas operators conduct their business in ways that:

- are consistent with the purposes of the NPS unit,
- prevent or minimize damage to the environment and other resource and visitor values, and
- leave park resources and values unimpaired for the enjoyment of future generations.

It is important for operators to understand that Congress has mandated that the NPS conserve resources in park units unimpaired for the enjoyment of future generations. Because oil and gas rights remain outstanding in some parks, the NPS must recognize those rights. However, it must also fulfill its mandate from Congress. The 9B are reasonable time, place, and manner regulations that assist park managers in striking a balance between the goals of oil and gas operators and those of the NPS.



## **RIGHT TO CONDUCT OIL AND GAS OPERATIONS IN NATIONAL PARK SYSTEM UNITS**

The right to conduct oil and gas operations in units of the National Park system is based entirely on ownership (36 CFR §9.30(a)). The following persons may conduct operations in parks:

- the owners of the oil and gas interest, whether or not they own the surface interest,
- persons or companies that lease the oil and gas interests (lessee) from the owners (lessor), and
- persons or companies under contract with (or with the expressed written consent from) the owners or lessees to perform work specific to oil and gas operations.

### **DEMONSTRATION OF OWNERSHIP RIGHTS**

To demonstrate the right to operate in parks, operators must show to the NPS that they hold either a “lease, deed, designation of operator, or assignment of right.” This is the most basic and important piece of information that an operator must provide to the NPS. Without this showing, the NPS owes no legal obligation to an operator and will not review their plans of operation.

## **APPLICATION OF THE 36 CFR 9B REGULATIONS**

The applicability of the 9B regulations depends upon access on federal lands (36 CFR §9.30(a)). If an operator uses “access on, across, or through lands or waters owned or controlled by the United States” to conduct operations, they must comply with the NPS regulations.

The 9B regulations apply under any of the following situations:

- The oil and gas site is on land owned by the United States.
- The oil and gas site is on private land, but any part of the entrance or exit routes used by the operator cross lands or waters owned or controlled by the United States.
- Any part of a wellbore crosses under surface estate owned by the United States.

Under the 9B regulations:

Access means any and all ways of entering, going over, across, or underneath an area of land or water. It includes travel by vehicle, watercraft, fixed-wing aircraft, helicopter, off-road vehicle, mobile heavy equipment, snowmobile, pack animal, and by foot. It also includes travel of the drill bit.

Federally owned or controlled lands are all lands that the United States possesses fee title through purchase, donation, public domain, or condemnation. It also includes lands that the United States holds any interest, such as a lease, easement, right-of-way, or cooperative agreement.

Federally owned or controlled waters include all surface waters within the boundaries of a National Park System unit. It does not matter whether the United States does or does not hold title to the submerged lands.

## PLAN OF OPERATIONS SCOPE

An operator does not have to address all future activities in a plan of operations. Operators have the flexibility to prepare a plan only for the activities they want immediate approval (36 CFR §9.30(c)). For example, an operator can choose to address only the activities of drilling a well. However, the operator must keep in mind that approval of a plan permits only those specific operations addressed in the plan.

The NPS has found that it sometimes makes sense to include the next phase of an oil and gas development project in a plan of operations. The most common example is a plan for drilling and then producing a well. The advantage to this approach is there would be no delays in beginning production operations if the well is successful in finding oil or gas. In most cases, operators have a fairly good idea of the necessary production facilities and could include them in one plan of operations.

In other instances, the operator may not have the available information to develop a proposal for the next phase of the operation. For example, including plans of operations for drilling an exploration well with a 3D seismic proposal may be premature. On the other hand, if a successful well were based on 3D seismic data, it would probably be prudent to design a full field delineation and development plan of operations.

## RECLAMATION REQUIREMENT

All proposed plans of operations must adequately describe specific actions that will be taken to achieve compliance with the applicable reclamation requirements. The 9B regulations present two distinct sets of reclamation standards depending upon ownership and control of the surface estate disturbed during conduct of operations. An operator must initiate reclamation as soon as operations cease, and no later than six months following completion of operations, unless the NPS authorizes a longer period of time. For more information, see *Chapters 3, 4, 5, and 7*.

## PERFORMANCE BOND REQUIREMENT

Every plan of operations is conditioned upon the operator filing a performance bond or other acceptable type of security payable to the NPS. This bond is in addition to any bonds that might be required by other regulatory agencies. If the operator fails to comply with the conditions in the plan of operations, the NPS can attached the bond to pay for any damage caused by the noncompliance. See *Chapter 10, Performance Bonds* for information on the NPS's performance bond requirements.

## **DIRECTIONALLY DRILLED WELLS WITH SURFACE LOCATIONS OUTSIDE A PARK AND BOTTOMHOLE LOCATIONS INSIDE A PARK**

A well drilled underneath the park from a surface location outside the park is subject to the 9B regulations, but the NPS can grant an exemption from the 9B regulations if the NPS can determine that “such operation poses no significant threat of damage to park resources, both surface and subsurface...”(36 CFR §9.32(e)). See *Chapter 5, Application for Directionally Drilling a Well from Outside the Park Boundaries to Inside a Park Unit* for information on how to apply for a 9B exemption.

## **CHANGES TO A PLAN OF OPERATIONS**

Revisions to a plan of operations might be necessary because of changes in environmental conditions, operational needs, or to address a situation that was unforeseen when the plan of operations was first approved. Either the operator or the NPS can initiate amendments to a plan of operations (36 CFR §9.40). Proposed revisions are made in writing with a description of the changes and why they are needed. *Appendix C* includes the sample letter - *Plan of Operations Amendment* that can be used by an operator to amend or update a plan of operations.

The proposed revisions must go through the NPS review process again and may require an analysis required under the National Environmental Policy Act (NEPA).

When the NPS initiates a revision, the process can take one of the following two paths:

1. If the revision is not being made to remove an “immediate threat of significant injury [to the park]”, then the NPS notifies the operator in writing 60 days prior to the date when the revision will become effective.
2. If the revision is necessary to remove an “immediate threat of significant injury [to the park]”, then the superintendent uses the suspension authority under the 9B regulations (36 CFR §9.33(c)).

First, the superintendent will require the operator to immediately suspend operations until the threat is removed or remedied. If the Superintendent issues the operator a suspension order, the superintendent will notify the operator in writing within 5 days with the reasons the operation was shut down, and what must be done to resume operations. The operator has the right to appeal the suspension order under §9.49, Appeals.

## SALE OR TRANSFER OF AN OPERATION

Under the 9B regulations, both the seller and buyer of an oil and gas operation have responsibilities if the operation that was sold was under an approved plan of operations (36 CFR §9.34).

The seller has 60 days to notify the superintendent with information about the transfer. The notification needs to include;

- name and address of the new operator, and
- description of the transferred interest.

The previous operator is responsible for the operations under their performance bond until the superintendent is notified of the transfer. At that time, the previous operator's bond may be released if the superintendent determines the operator has not retained any liability in the operation.

To continue operating, the new operator must either:

- accept in writing all the terms and conditions of the old plan of operations and file a performance bond, or
- cease operations and submit a new plan of operations for approval.

In most cases, it makes sense for the new operator to ratify the old plan and file a performance bond. If and when the need arises, the new operator can amend or submit a new plan of operations.

Appendix C includes sample letters entitled *Change of Operator Notification* (from new owner or from transferring owner) that can be updated by an operator if an oil and gas operation is going to change ownership.

## EXEMPTIONS TO THE 36 CFR 9B REGULATIONS

The 9B regulations do not apply to every oil and gas operation that occurs in a park unit. The following classes of operations do not fall under the 9B regulations:

- Operations that do not access federally controlled lands or waters.
- Operations on federal leases (36 CFR §9.30(b)). Federal leasing is prohibited in all parks with the exception of three national recreation areas (Lake Mead, Glen Canyon, and Whiskeytown Shasta). The few federal leases that remain in other parks are remnants from leasing before the area was designated a park. The Bureau of Land Management regulates federal lease operations under 43 CFR, Group 3100.
- Operations on mining claims (36 CFR §9.30(b)). Activities resulting from valid existing mineral rights on patented or unpatented mining claims are covered by the regulations at 36 CFR, Part 9, Subpart A.
- Transportation pipelines associated with rights-of-way do not fall under the 9B regulations, but may be subject to special use permits issued by the NPS. See Chapter 8 – Transpark Pipelines if the park has indicated that the pipeline operation requires a NPS permit.

## **EXISTING OPERATIONS**

In the 9B regulations, "existing operations" may continue without submitting a plan of operations or filing a performance bond or security deposit. These operations are essentially "grandfathered" (36 CFR §9.33).

An "existing operation" uses federal access, but meets one of the following conditions:

1. The operation was ongoing under a valid state or federal permit as of January 8, 1979 (effective date of the regulations).
2. The operation was ongoing under a valid state or federal permit when the area became a new park unit.
3. The operation was ongoing under a valid state or federal permit when the area came into the park system by expansion of an existing unit.

A state or federal permit is considered valid if:

- the permit was issued to the current operator on or before January 8, 1979,
- the term of the permit has not expired, and
- the operations have not undergone any change requiring a new permit since January 8, 1979.

## **LOSS OF "EXISTING OPERATIONS" STATUS**

An existing operation can lose its exempt status. If this happens, the operator must comply with the 9B regulations. This includes filing a plan of operations with the NPS and submitting a performance bond. Two cases where an "existing operation" would lose its exempt status are:

1. the state or federal permit expires by its own terms, or
2. there is a change in an operation that requires a new state or federal permit.

The list below gives some examples of situations that can cause an operation to lose its exempt status.

- The operation has a change in operator. New operators are often required by states to obtain a new operating permit specific to the acquired property.
- The operator proposes well work that requires state approval. Examples include recompleting a well to a different producing zone (plug backs and deepenings), or plugging and abandonment.
- The operator proposes to use additional federally owned lands or waters. New use of federal land or water in a park unit requires a new permit from the National Park Service. Common examples include enlarging a wellpad to accommodate expanded production facilities or widening a road to improve access to the site.

## **SUSPENSION OF EXISTING OPERATIONS**

If "[a]t any time when [existing operations] pose an immediate threat of significant injury to federally owned or controlled lands or waters, the superintendent shall require the operator to suspend operations immediately until the threat is removed or remedied." (36 CFR §9.33(c))

The superintendent will notify the operator in writing (within 5 days) with the reasons the operation was shut down, and what must be done to restart operations. The operator can appeal the suspension order under 36 CFR §9.49, Appeals.

Examples of an immediate threat of significant injury include, but are not limited to:

- escape of hydrogen sulfide or other toxic or noxious gas
- vegetation clearing or earth moving outside the area currently approved (by regulation or plan) for operations
- uncontained or chronic oil, brine, or hazardous material spills
- well blow-out
- leaching or release of an environmental contaminant (e.g., contaminated stormwater runoff)
- fire or fire hazard
- unmaintained oil or brine storage tanks that lack secondary containment such as berming
- inadequate safeguard for controlling well pressures
- inadequate safeguards for protecting visitors and wildlife from serious injury
- damage to cultural resources

## **PLUGGING AND RECLAMATION OF EXISTING OPERATIONS**

Existing operations often lose their exempt status from the plan of operations and performance bond requirements because well plugging requires a new state permit. Prior to well plugging, the operator needs to:

1. file a plan covering the well plugging and surface reclamation,
2. receive NPS approval, and
3. submit a performance bond.

It is very important for grandfathered operators to understand this aspect of the regulations, both environmentally and financially. The manner in which operations are conducted will directly affect the cost of the surface reclamation. It will also affect the sales price of the property because today's buyers are more aware of environmental liabilities.

## **APPEAL OF A NPS DECISION**

An operator can formally appeal any decision of the superintendent or regional director (36 CFR §9.49). The appeals process is described below:

1. Within 30 days of receiving a decision, the operator files a written statement to the NPS official who made the decision. The statement describes in detail, how the decision disagrees with the facts, law, or regulations. In most cases the NPS official will be the superintendent or the regional director. The NPS has no obligation to act on appeals received after 30 days.
2. Upon receiving the appeal, the NPS official reviews the decision based on the operator's statement. The regulation says the review must be prompt, but gives no specific time frame.
3. If the NPS official changes his decision, the appeal process ends.
4. If the NPS official agrees with the original decision, the official prepares a written response to the operator. The statement explains why the decision will not change. The official also gives a copy of the statement and all supporting information to the next in the chain of command. (The superintendent reports to the regional director who reports to the director of the NPS.)
5. The operator then has to provide a statement to the NPS official's supervisor (filing exceptions). The operator states the disagreement(s) with the NPS official's reasons for allowing the original decision to stand. The operator has 30 days to file the exceptions. If the operator doesn't file exceptions, it means the operator drops the appeal. The appeal process then ends and the decision stands.
6. The regional director (or director) has 45 days after receiving the operator's exceptions to decide on the appeal. The decision on the appeal will be a written statement that lays out the facts of the case and the conclusions. The conclusions will be supported with reasons included in the statement.

An appeal normally only proceeds to the next level of supervision. The supervisor's decision is the final action by the National Park Service, with one exception. If the action being appealed is a suspension order from the superintendent, the order can be appealed first to the regional director, then to the director of the NPS, if necessary.

Once an NPS official (superintendent or regional director) makes a decision as part of an approved plan of operations, the operator is bound by that decision. During the appeal process, an operator can petition to have the decision in question “stayed” (suspended). A stay will keep the decision from becoming effective until the appeal process is completed. A request for a stay can accompany the first appeal or be sent directly to the Director.

## **36 CFR 9B REGULATION TOPICS NOT COVERED IN THIS CHAPTER**

The following topics from the 9B regulations are covered in other chapters of this handbook.

- Use of Water (§9.35): Chapter 3, 4, and 7
- Plan of Operations Approval (§9.37): Chapter 2 – Plan of Operations
- Temporary Approval (§9.38): Chapter 2 - Plan of Operations
- Reclamation Requirements (§9.39): Chapters 3, 4, and 7 – Information Requirements lists and Chapter 7: Well Plugging and Surface Reclamation Operating Stipulations Table
- Operating Standards (§9.41): Chapters 3, 4, and 7 – Operating Stipulations Tables
- Handling of Wastes (§9.45):– Chapters 3, 4, and 7 – Operating Stipulations Tables
- Cultural Resource Protection (§9.47):– Chapter 2 – Environmental Compliance Section
- Performance Bond (§9.48): Chapter 10 – Performance Bonds
- Damages and Penalties (§9.51): Chapter 12 – Liability of Operators, Their Contractors and Subcontractors
- Public Inspection of Documents (§9.52): Chapter 2 – Environmental Compliance Section

Some sections of the 9B regulations are self-explanatory and are reprinted in Appendix A., including:

- Definitions: §9.31
- High Pressure Precautions: §9.43
- Open Flows and Control of Wild Wells: §9.44
- Well Records and Reports, Plots and Maps, Samples, Tests, and Surveys: §9.42
- Accidents and Fires: §9.46
- Use of Roads by Commercial Vehicles: §9.50





## **CHAPTER 2**

# **PLAN OF OPERATIONS APPLICATION AND PERMITTING PROCESS**

### **INTRODUCTION**

A plan of operations (plan) is the heart of the 9B regulations. The operator prepares the plan of operations. It describes the proposed operation, including the equipment, methods and materials to be used in the operation, mitigation measures to protect park resources and values, environmental conditions in the vicinity of the site, and environmental impacts of the proposed operation. When approved, the plan of operations serves as the operator's permit to conduct operations in a park.

This chapter describes the plan of operations application and permitting process. It is organized sequentially from the first steps in the preparation of a plan to its final approval. Table 2.1 outlines the plan of operations application and approval process and a typical timetable for a plan of operations. Towards the end of this chapter, key environmental laws that apply to nonfederal oil and gas operations are presented. Flowcharts outlining these compliance processes and who is responsible for each step in the process is also included. A comprehensive list and description of the applicable legal and policy requirements (laws, executive orders, and NPS policies) is included in *Appendix B – Federal Laws, Regulations, Executive Orders, Policies, and Guidelines That Apply to Nonfederal Oil and Gas Operations*.

To assist the operator in developing a plan of operations, specific information requirements, operating stipulations and recommended mitigation measures for each type of oil and gas operation are presented in *Chapter 3 - Geophysical Operations*, *Chapter 4 - Drilling and Production Operations*, *Chapter 5 – Directional Drilling Operations*, *Chapter 7 - Well Plugging and Surface Reclamation*, *Chapter 8 – Transpark Pipelines*, and *Chapter 9 – Flowlines and Gathering Lines*.

**Table 2.1. National Park Service Processing Time for a Plan of Operations**

<b>ACTION</b>	<b>NPS RESPONSE TIME</b>	<b>LIMITING FACTOR</b>
Operator contacts park regarding interest in conducting oil and gas operations. Operator provides written documentation demonstrating right to conduct operations.	Same day	Subject to park staff availability
Park provides operator copies of 36 CFR 9B regulations, performance standards, plan of operations requirements, and other information as necessary.	Same day	Subject to park staff availability
Operator meets with park staff to scope resource issues relevant to the proposed operation to: determine resources that could be affected by the operation; identify environmental planning and compliance requirements; and determine affected local, state and federal agencies.	Variable – NPS provides assistance as needed. Scoping meeting typically lasts one day	Subject to park staff and operator availability
Operator meets with park staff and affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies.	Variable – NPS provides assistance as needed	Subject to park staff, other agency staff, and operator availability
Operator submits written request for temporary access to gather basic information needed to complete the plan of operations.	Variable - NPS provides assistance as needed	Subject to operator response
Park issues 60-day data collection permit with park resource/visitor protection requirements.	1 - 2 days	Subject to park staff availability
Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area.	Variable - NPS provides assistance as needed	Subject to operator response or timing requirements
Operator submits draft plan of operations to park.	Variable - NPS provides assistance as needed	Subject to operator response
NPS performs a completeness and technical review of the plan of operations. Park accepts plan of operations as complete or returns the plan to the operator with specific directions on how to revise the plan.	30 days	NPS policy from NPS procedures governing nonfederal oil and gas rights, 1992; and 36 CFR §9.36(c)
Operator revises plan of operations, as necessary.	Variable - NPS provides assistance as needed	Subject to operator response
Park staff prepares NEPA document (EA or EIS) or adopts operator's (or consultant-prepared) NEPA document, incorporates other environmental compliance (NHPA, wetlands, floodplains, ESA, CZM etc.), and initiates mandated consultations with other agencies. Park completes public review process, finalizes decision documents, and notifies the operator if the plan has been approved, conditionally approved, or rejected.	60 days (includes 30-day public review of EA)	36 CFR §9.37, 36 CFR §9.52(b), NPS DO-77.1 for wetlands compliance, NPS Special Directive 93-4 for floodplains compliance, and DO-12 for NEPA compliance. Operator notified if additional time is needed per 36 CFR §9.37(b)(6)
Operator agrees to any conditions of approval (if any), submits applicable state and federal permits, and files suitable performance bond with the NPS.	Variable	Subject to operator response
<b>TOTAL NPS RESPONSE TIME</b>	Minimum of 3 to 4 months	Dependent on compliance requirements

## DEMONSTRATION OF AN OPERATOR'S RIGHT TO OPERATE

To prevent damage to park resources and values, and inappropriate use of park staff's time, the NPS must ensure that a project proponent has bona fide property rights with respect to a mineral interest. Not surprisingly then, the NPS's first matter of business is establishing the person's right to conduct operations in the park.

Demonstration of the "right to operate" is a fundamental informational requirement of the 9B regulations and is the first step in the oil and gas permitting process. The following types of documentation can be used to demonstrate the operator's lawful right to conduct oil and gas operations:

- operator's deed,
- affidavit of ownership,
- lease document,
- assignment of rights, or
- designation of operator.

For existing operations, the NPS may accept a copy of a state operating permit or equivalent documentation from the state agency responsible for regulating oil and gas activities, provided the state permitting process includes a demonstration of the permittee's ownership right.

The NPS has found that demonstrating the right to operate may become an issue when an operator is proposing large-scale seismic programs that involve operations on many different tracts. Sometimes the operator does not possess mineral rights over all the tracts and may be obtaining the rights or grants of permission from mineral owners, lessees, etc. during the development of a plan of operations. In these cases, the NPS will wait until the appropriate documentation is presented to the NPS.

Oil and gas project planning will typically not proceed past initial scoping meetings with park staff without appropriate ownership information. Even temporary access for purposes of data collection in areas where the operator has not demonstrated its right to operate is problematic if there is a potential for resource degradation. Early in the project planning process, operator's can be faced with a decision to "complete the process of obtaining rights" or modify their project to conduct operations only in the areas where they possess a right.

In no event will the NPS formally accept a plan of operations as complete if it lacks the "right to operate" documentation in all areas where operations are proposed.

*Appendix C* includes the sample letter - *Operator's Right to Operate* that can be updated by an operator to demonstrate the right to conduct operations in a unit of the National Park System.

### PROJECT SCOPING AND ONSITE MEETING

Scoping is the initial phase of the project planning process and involves the park staff and operator. Project scoping needs to be conducted as early as possible to be effective; when an operator demonstrates to the park a right to operate, and before the operator begins to prepare a plan of operations.

Scoping is a process in which an operator describes the proposed oil and gas operation to the park staff; and together, the park staff and operator define:

- applicable legal and policy requirements,
- roles and responsibilities,
- project-specific issues,
- alternative locations and methods for the operation,
- mitigation measures,
- available sources of data,
- additional data collection / information requirements, and
- project timeline.

Most often the park staff will conduct project scoping with the operator. Depending on the complexity of the proposal and the types of issues to be described and evaluated, participation by other state/federal/tribal agency staff, and NPS technical specialists from NPS Support Offices, Geologic Resources Division, and other Natural Resource Program Centers may be necessary at the initial scoping meeting.

Effective scoping enables the operator to prepare a complete and environmentally sound plan of operations. There will be less chance that NPS, state/federal/tribal agencies, and public review will result in major revisions or permitting delays. Poor scoping can require major revisions to the plan and result in delays in beginning the operation.

### DISCUSSION ITEMS FOR PROJECT SCOPING / ONSITE MEETING

The following topics should be covered during the scoping / onsite meeting to assist park staff and operators in the preparation of a plan of operations:

#### **Operator**

The operator should describe the proposed operation. The discussion should include:

- type of operation,
- location,
- methods to be used, and
- proposed schedule.

#### **National Park Service**

1. Describe the 36 CFR 9B permitting process. The discussion should include:

- overview of the plan of operations preparation, review, and approval process,
- content requirements for a plan of operations,

- specific data/information requirements,
  - temporary permit for data collection and surveying and staking the operation's area,
  - other-agency consultation and permitting requirements,
  - plan of operations completeness review,
  - NEPA and other environmental compliance documentation,
  - public review and comment,
  - performance bonding, and
  - NPS decision on a proposed plan of operations.
2. Identify applicable legal mandates and direction such as: 36 CFR 9B, park enabling act, Organic Act and General Authorities Act, National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA), Clean Water Act (CWA), Coastal Zone Management Act (CZMA), Wetlands Protection, Floodplains Management, and park planning documents (General Management Plan, Statement for Management, Oil and Gas Management Plan).
  3. Identify interested and affected state/federal/tribal agencies such as the U.S. Army Corps of Engineers (COE), State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and adjacent landowners.
  4. Identify roles and responsibilities of NPS staff, operator, other state/federal/tribal agencies (e.g. who coordinates meeting with interested state/federal/tribal entities; prepares plan of operations, NEPA document, Biological Assessment (BA), wetlands and/or floodplains Statement of Findings (SOF); coordinates public involvement; consults with affected state and federal agencies; and issues permit(s)).
  5. Review available NPS data for the proposed operations area and identify additional data collection/information needs.

### Site Visit

1. Identify resources and values that could potentially be affected by the operation. Use Table 2.2, Environmental Screening Form (ESF) as a basis for discussion. Identify information and data needs listed on the ESF.
2. Identify potential impacts on park resources and values from the proposed operation.
3. Develop mitigation measures to protect park resources and values (see Tables of Operating Stipulations and Recommended Mitigation Measures for *Geophysical Exploration Operations – Chapter 3, Drilling and Production Operations – Chapter 4, and Plugging / Abandonment / Reclamation Operations – Chapter 7* in this handbook).
4. Discuss alternative ways to develop the project. In order to minimize impacts, consider different:
  - locations and access routes,
  - types of equipment,
  - operating methods, and
  - times to conduct operations.
5. Develop a project schedule (data-collection, preparation of the plan of operations, and implementation of proposal).

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6. Following the scoping meeting, park staff compiles meeting notes and distributes to the operator and NPS staff. The meeting notes should summarize the decisions that were made at the meeting (required resources surveys, alternatives considered from the above list, mitigation measures etc.).

### Table 2.2. Environmental Screening Form

(from DO-12, Appendix 1, revised January 2002)

This form must be attached to all documents sent to the NPS regional director's office for signature. **Sections A and B should be filled out by the project initiator** (may be coupled with other park project initiation forms). Sections C, D, E, and G are to be completed by the interdisciplinary team members. While you may modify this form to fit your needs, you must ensure that the form includes information detailed below and must have your modifications reviewed and approved by the NPS regional environmental coordinator.

## A. PROJECT INFORMATION

Park Name: \_\_\_\_\_

Project Type (*Check*): ☐ Cyclic ☐ Cultural Cyclic ☐ Repair/Rehab ☐ ONPS  
☐ NRPP ☐ CRPP ☐ FLHP  
☐ Line Item ☐ Fee Demo ☐ Concession Reimbursable  
X Other (specify) Nonfederal Oil and Gas Operation

Project Location: \_\_\_\_\_

Project Originator/Coordinator: \_\_\_\_\_

Project Title: \_\_\_\_\_

Contract: \_\_\_\_\_

Contractor Name: \_\_\_\_\_

Administrative Record Location: \_\_\_\_\_

Administrative Record Contact:\_\_\_\_\_

**B. PROJECT DESCRIPTION/LOCATION** *[To begin the statutory compliance file, attach this form, maps, site visit notes, agency consultation, data, reports, categorical exclusion form (if relevant), or other relevant materials.]*

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slightly textured appearance and is set against a dark background.

Preliminary drawings attached? ☐Yes ☐No

Background info attached? ☐Yes ☐No



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Date form initiated: \_\_\_\_\_

Anticipated compliance completion date: \_\_\_\_\_

Projected advertisement/Day labor start: \_\_\_\_\_

Construction start: \_\_\_\_\_

### C. RESOURCE EFFECTS TO CONSIDER *(The following table can be tailored to meet individual park/unit project needs.)*

Are any measurable <sup>1</sup> impacts possible on the following physical, natural or cultural resources?	Yes	No	Data Needed to Determine
1. Geological resources – soils, bedrock, streambeds, etc.			
2. From geohazards			
3. Air quality			
4. Soundscapes			
5. Water quality or quantity			
6. Streamflow characteristics			
7. Marine or estuarine resources			
8. Floodplains or wetlands			
9. Land use, including occupancy, income, values, ownership, type of use			
10. Rare or unusual vegetation – old growth timber, riparian, alpine			
11. Species of special concern (plant or animal; state or federal listed or proposed for listing) or their habitat			
12. Unique ecosystems, biosphere reserves, World Heritage Sites			
13. Unique or important wildlife or wildlife habitat			
14. Unique or important fish or fish habitat			
15. Introduce or promote non-native species (plant or animal)			
16. Recreation resources, including supply, demand, visitation, activities, etc.			
17. Visitor experience, aesthetic resources			
18. Cultural resources including cultural landscapes, ethnographic resources			
19. Socioeconomics, including employment, occupation, income changes, tax base, infrastructure			
20. Minority and low income populations, ethnography, size, migration patterns, etc.			
21. Energy resources			
22. Other agency or tribal land use plans or policies			
23. Resource, including energy, conservation potential			
24. Urban quality, gateway communities, etc.			
25. Long-term management of resources or land/resource productivity			
26. Other important environment resources (e.g. geothermal, paleontological resources)?			

<sup>1</sup> Measurable impacts are those that the interdisciplinary team determines to be greater than negligible by the analysis process described in DO-12 §2.9 and §4.5(G)(4) to (G)(5).

**D. MANDATORY CRITERIA**

<b>Mandatory Criteria: If implemented, would the proposal:</b>	<b>Yes</b>	<b>No</b>	<b>DATA NEEDED TO DETERMINE</b>
A. Have material adverse effects on public health or safety?			
B. Have adverse effects on such unique characteristics as historic or cultural resources; park, recreation, or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands; floodplains; or ecologically significant or critical areas, including those listed on the National Register of Natural Landmarks?			
C. Have highly controversial environmental effects?			
D. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks?			
E. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?			
F. Be directly related to other actions with individually insignificant, but cumulatively significant, environmental effects?			
G. Have adverse effects on properties listed or eligible for listing on the National Register of Historic Places?			
H. Have adverse effects on species listed or proposed to be listed on the List of Endangered or Threatened Species or have adverse effects on designated Critical Habitat for these species?			
I. Require compliance with Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), or the Fish and Wildlife Coordination Act?			
J. Threaten to violate a federal, state, local, or tribal law or requirement imposed for the protection of the environment?			
K. Involve unresolved conflicts concerning alternative uses of available resources (NEPA sec. 102(2)(E))?			
L. Have a disproportionate, significant adverse effect on low-income or minority populations (EO 12898)?			
M. Restrict access to and ceremonial use of Indian sacred sites by Indian religious practitioners or adversely affect the physical integrity of such sacred sites (EO 13007)?			
N. Contribute to the introduction, continued existence, or spread of federally listed noxious weeds (Federal Noxious Weed Control Act)?			
O. Contribute to the introduction, continued existence, or spread of non-native invasive species or actions that may promote the introduction, growth or expansion of the range of non-native invasive species (EO 13112)?			
P. Require a permit from a federal, state, or local agency to proceed, unless the agency from which the permit is required agrees that a CE is appropriate?			
Q. Have the potential for significant impact as indicated by a federal, state, or local agency or Indian tribe?			
R. Have the potential to be controversial because of disagreement over possible environmental effects?			
S. Have the potential to violate the NPS Organic Act by impairing park resources or values?			

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### E. OTHER INFORMATION (PLEASE ANSWER THE FOLLOWING QUESTIONS AND PROVIDE REQUESTED INFORMATION.)

Are personnel preparing this form familiar with the site? ☐ Yes ☐ No

Did personnel conduct a site visit? ☐ Yes ☐ No (If yes, attach meeting notes or additional pages noting when site visit took place, who attended, etc.)

Is the project in an approved plan such as a General Management Plan or an Implementation Plan with an accompanying environmental document? ☐ Yes ☐ No

If so, plan name: \_\_\_\_\_

Is the project still consistent with the approved plan? ☐ Yes ☐ No (If no, prepare plan/EA or EIS.)

Is the environmental document accurate and up-to-date? ☐ Yes ☐ No (If no, prepare plan/EA or EIS.) FONSI ☐ ROD ☐ (Check)

Date approved: \_\_\_\_\_

Are there any interested or affected agencies or parties? ☐ Yes ☐ No

Did you make a diligent effort to contact them? ☐ Yes ☐ No

Has consultation with all affected agencies or tribes been completed? ☐ Yes ☐ No  
(If so, attach additional pages detailing the consultation, including the name, the dates, and a summary of comments from other agencies or tribal contacts.)

Are there any connected, cumulative, or similar actions as part of the proposed action?  
☐ Yes ☐ No  
(If so, attach additional pages detailing the other actions.)

### F. INSTRUCTIONS FOR DETERMINING APPROPRIATE NEPA PATHWAY

Complete the following tasks: conduct a site visit or ensure that staff is familiar with the site's specifics; consult with affected agencies, and/or tribes; and interested public and complete this environmental screening form.

If your action is not described in DO-12 § 3.4 or if you checked yes or identified "data needed to determine" impacts in any block in Section D (Mandatory Criteria), you must prepare an environmental assessment or environmental impact statement.

If you checked no in all blocks in Section C (resource effects to consider) and checked no in all blocks in Section D (Mandatory Criteria) and if the action is described in DO-12 § 3.4, you may proceed to the categorical exclusion form (Appendix 2 of DO-12 Handbook).

**G. INTERDISCIPLINARY TEAM SIGNATORY** (ALL INTERDISCIPLINARY TEAM MEMBERS MUST SIGN.)

*By signing this form, you affirm the following: you have either completed a site visit or are familiar with the specifics of the site; you have consulted with affected agencies and tribes; and you, to the best of your knowledge, have answered the questions posed in the checklist correctly.*

Interdisciplinary Team Leader Name	Field of Expertise	Date Signed
Technical Specialists Names	Field of Expertise	Date Signed

**H. SUPERVISORY SIGNATORY**

Based on the environmental impact information contained in the statutory compliance file and in this environmental screening form, environmental documentation for the subject project is complete.

Recommended:

Compliance Specialist	Telephone Number	Date

Approved:

Superintendent	Telephone Number	Date



## APPLICATION FOR A TEMPORARY PERMIT

When scoping is completed, the operator and park staff have identified a site for locating operations and developed a list of resources and values that could potentially be affected by the proposed operation. The operator will then collect data in the operations area to describe existing environmental conditions in the plan of operations (36 CFR §9.36(16)(i)). The survey area includes all areas to be affected directly or indirectly by the operations and not only the immediate area involved in the operations. The information collected by the operator must be detailed enough for the NPS to analyze potential impacts from the proposed operation.

In addition to information provided by the park, the operator and its contractors should research other available sources of data, which might include contacting state and federal agencies, and technical specialists. The topics that will be described in the plan of operations depend upon the park resources that could be affected by the proposed operation(s). The information collected by the operator will also be used to prepare the National Environmental Policy Act (NEPA) document for the proposal.

An operator's access on, across or through federally-owned or controlled lands or waters for the purpose of collecting basic information is provided under 36 CFR §9.38(a)(1), Temporary Approval. A permit to survey and stake the proposed operations area for the purpose of collecting natural and cultural resource data, and to survey the site and access route is granted by the regional director for a period "...not in excess of sixty (60) days". In some NPS regions, the authority to grant data-collection permits are delegated to the park superintendent. Qualified professionals are required to conduct all natural resource, cultural resource, and engineering surveys.

An operator is required to submit a written request to the park superintendent for a 60-day temporary permit, under 36 CFR §9.38(a)(1). *Appendix C – Sample Letters for Nonfederal Oil and Gas Operations* includes the sample letter - *Request for a Temporary Access Permit* and supplementary information that can be used by an operator to request a temporary access permit for data collection, to continue an existing operation, or to conduct a new operation.

Information needed by the superintendent to issue the temporary permit, includes:

- Name of operator,
- Description of proposed operations,
- Documentation demonstrating the operator's right to explore for and/or develop nonfederal minerals underlying the park (not required if already provided to the park to initiate the scoping process for the proposed operations),
- Type of survey(s) to be conducted,
- Location of survey(s) - include a map showing access routes and boundary of survey(s),
- Name of individual(s) that will conduct the survey (enclose qualifications, certifications, etc.),
- Proposed date to start survey(s) (a minimum 2-week advance is recommended), and
- Type of equipment and methodology proposed to conduct the survey(s), including a description of the type of equipment/methods proposed to access and survey the proposed project area (e.g. by foot, vehicle, ATV, etc.).

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The 60-day temporary permit will be issued by the park via a letter to the operator, and will specify start and end dates. The park superintendent may include operating stipulations in the permit letter that would be applied to protect; park resources and values, park management activities, and visitor uses and experiences. The permit letter must be carried by the individual(s) while they are conducting the survey(s) in the park. The operator or their subcontractors must coordinate site visits with the park to ensure that a park representative is available to accompany workers engaged in gathering data and/or surveying in the park.

Based on the data needs determined during project scoping, 60-day temporary permits are issued for the types of surveys listed in Table 2.3.

**Table 2.3. Types of surveys that may be conducted with a temporary permit**

EXISTING ENVIRONMENTAL CONDITIONS TOPIC	TYPE OF SURVEY
1. Air quality	Air quality monitoring
2. Geologic resources, including at a minimum: <ul style="list-style-type: none"><li>• name of the surface formation,</li><li>• type, depth, and description of soils,</li><li>• proposed drilling depth,</li><li>• estimated tops of important geologic markers,</li><li>• estimated depths at which water, brines, oil, gas, or other mineral bearing formations are expected to be encountered,</li><li>• nature and extent of the known deposit or reservoir to be produced,</li><li>• surface topographic contours, and</li><li>• unique geologic features</li></ul>	Geologic resource survey – collect baseline information to describe soils, topography, and surface and subsurface geologic formations, and determine if unique geologic features (e.g. filled chimneys, pimple mounds, salt diapirs) or geohazards (e.g. landslide areas, highly erodible soils) occur or are likely to occur in the operations area
3. Paleontological resources	Paleontological survey – determine if fossil remains occur or are likely to occur in the operations area
4. Surface and/or groundwater hydrology	Hydrologic assessment and groundwater monitoring – collect baseline information to describe surface water and groundwater in the vicinity of the proposed operations area
5. Baseline condition of surface and/or groundwater and soils	Surface and/or groundwater and soils sampling– sampling for lab analyses to establish a baseline for possible future clean-up and remediation activities
6. Floodplains	Floodplain assessment – in the absence of Flood Insurance Rate Maps (FIRM), hydrologic and hydraulic analyses will be required to determine if the operations area is located within or adjacent to the 100-year, 500-year, or extreme floodplain
7. Wetlands	Wetlands delineation – determine if the operations area is located within or adjacent to wetlands and to assess wetland values
8. Vegetation	Vegetation survey – establish baseline vegetation conditions (percent composition and diversity) for revegetation of the operations area upon completion of the operations
9. Fish and wildlife	Biological survey – collect baseline information on the fish and wildlife that inhabit the proposed operations area
10. Threatened and endangered species and their habitat	Biological survey – determine if threatened or endangered plants or animals or their habitats occur or are likely to occur in the operations area

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EXISTING ENVIRONMENTAL CONDITIONS TOPIC	TYPE OF SURVEY
11. Cultural resources	Cultural resources survey – determine if ethnographic resources, archeological resources, historic structures, and/or cultural landscapes occur in the operations area and if resources are listed in or eligible for listing in the National Register of Historic Places
12. Coastal zone resources	Coastal zone resources survey – if an operation is proposed in a state that has an USDOC/NOAA-approved Coastal Zone Management Program, and potential exists for proposed operations to have a “spillover effect” on coastal resources located outside the park, identify coastal resources in the operations area that extends outside of the park
13. Visitor use and experience	Recreational use survey – locate visitor use developments, access roads, and other visitor use areas (e.g. hiking trails, campgrounds, overlooks)
14. Socioeconomics	Adjacent landowners and uses survey – if an operation is proposed to be located near or outside the park boundaries, identify adjacent landowners and uses in the operations area
15. Map of all water, abandoned, temporarily abandoned, disposal, production, and drilling wells of public record within a two-mile radius of the proposed site.	Field survey (if needed) – where such information is available from documents identified in §9.36(d), specific reference to the document and the location within the document where the information can be found will be sufficient to satisfy this requirement.
16. Project area map showing: <ul style="list-style-type: none"> <li>• location of existing and proposed access roads or routes to the operations site,</li> <li>• boundaries of proposed surface disturbance,</li> <li>• wellsite layout,</li> <li>• location and description of all surface facilities including sumps and ponds,</li> <li>• location of tank batteries, production facilities and gathering, service and transmission lines,</li> <li>• sources of construction materials such as fill,</li> <li>• location of ancillary facilities such as camps, sanitary facilities, water supply and disposal facilities, and airstrips, and</li> <li>• topographic profile of wellpad and access road.</li> </ul>	Field survey of the proposed operations area
17. Additional information that is required to enable the superintendent to establish whether the operator has the right to conduct operations as specified in the plan of operations; to effectively analyze the effects that the operations will have on the preservation, management and public use of the unit; and to make a recommendation to the regional director regarding approval or disapproval of the plan of operations and the amount of the performance bond to be posted.	



## **PLAN OF OPERATIONS PREPARATION AND SUBMITTAL**

When site-specific resource information has been collected and analyzed<sup>2</sup>, and all required consultations and permit applications have been initiated with the appropriate entities, the operator prepares the plan of operations. Once the plan of operations is completed, a minimum of three (3) copies are submitted to the NPS for a technical adequacy review. The copies of the plan of operations should be sent directly to the park representative that is responsible for overseeing the oil and gas operation.

### **ADEQUACY DETERMINATION ON A PROPOSED PLAN OF OPERATIONS**

A proposed plan of operations submitted by an operator will be officially accepted for formal review by the NPS when the regional director determines that the plan:

1. contains all information required by the superintendent, and
2. is sufficiently detailed for the NPS to effectively analyze the impacts of the proposed operations on park resources and values.

The 9B regulations do not give a required time period for the NPS to make the adequacy determination. Every effort will be made to review the plan for completeness and respond to the operator within several weeks.

The NPS adequacy review will take place at different NPS offices at the same time. The regional director's staff, superintendent's staff, and the Geologic Resources Division may initially review the plan. The superintendent prepares a response letter for the operator. If the plan is not accepted as adequate, the superintendent's letter explains what information is still needed to complete the plan.

### **PUBLIC REVIEW AND COMMENT ON THE PLAN OF OPERATIONS AND NEPA DOCUMENT**

Once the internal NPS technical adequacy review of the plan of operations has been completed, and the NEPA document (typically an environmental assessment) has been prepared and reviewed by NPS staff, the plan and NEPA document are made available for public review and comment. The NPS policy is to allow concurrent public review of a plan of operations, NEPA document, and if required, wetlands and / or floodplain Statements of Findings (SOF). This allows the reviewers to see the plan of operations along with the NPS evaluation of environmental impacts. The NPS required public review period for a plan of operations and environmental assessment is 30 days, and for an environmental impact statement it is 60 days. For more information on the NEPA planning process, see the *Environmental Compliance* section of this chapter.

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<sup>2</sup> The operator is required to conduct a pre-operational analysis to adequately describe the natural, social, and economic environments that would be affected by the operations (surveys may include: air quality, geology, topography, soils, paleontological resources, surface and subsurface hydrology, vegetation, floodplains, wetlands, fish and wildlife, threatened and endangered species, cultural resources, all water and oil and gas wells within a 2-mile radius of proposed operation) (36 CFR § 9.36(a)(16)(i)).

Consultation with applicable federal, state, and local agencies should be initiated early in the planning process, preferably during project scoping. The outcome of the consultations may not be completed until after the public review of the NEPA document and would be documented in the NEPA decision document for the plan of operations. Required consultations for a plan of operations may include:

- State Historic Preservation Office (SHPO) under the National Historic Preservation Act (NHPA);
- U.S. Fish and Wildlife Service (FWS), and if applicable, the National Marine Fisheries Service (NMFS), under the Endangered Species Act (ESA);
- Appropriate state and federal agencies if direct or indirect effects are expected to wetlands or floodplains under Executive Orders and NPS implementing guidelines (e.g. U.S. Army Corps of Engineers); and
- State agency responsible for implementation of the Coastal Zone Management Program under the Coastal Zone Management Act (CZMA) if the operation(s) could affect resources in the coastal zone.

The above compliance processes are presented in the *Environmental Compliance* section of this chapter.

### **NATIONAL PARK SERVICE DECISION ON A PROPOSED PLAN OF OPERATIONS**

Once the plan of operations is determined to be technically adequate, the NPS has 60 days to make a decision on the plan of operations (36 CFR §9.37(4)(b)). The 60-day NPS time period includes the preparation and public review of the NEPA document and compliance with all other applicable current legal and policy requirements (federal and state laws, regulations, federal executive orders, and NPS policies).

If there are circumstances that require additional processing time, the permitting process may be extended. The permitting process could be extended if:

- the analysis shows that a threatened or endangered species is present in the proposed project area and the NPS is required to undertake endangered Species Act formal Section 7 consultation with the U.S. Fish and Wildlife Service,
- the analysis shows that cultural resources that are listed or eligible for listing on the National Register of Historic Places may be present in the proposed operations area. It may be necessary to undertake formal consultation (National Historic Preservation Act §106) with the State Historic Preservation Office, Tribal Historic Preservation Office, and the Advisory Council on Historic Preservation to ensure protection of these resources,
- an environmental impact statement must be prepared and released for a mandatory 60-day public review and comment period, or
- the NPS needs additional time to provide opportunities for public comment and an analysis of these comments by the NPS.

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When the analysis of the public comments is complete, the regional director will make a determination that the plan:

- is approved as submitted,
- is conditionally approved, subject to the operator's acceptance of specific provisions and stipulations,
- must be modified prior to its approval,
- is rejected, or
- additional information is needed to effectively analyze the impacts that the proposed operation would have on the preservation, management and use of the NPS unit.

Failure of the NPS to make a determination on the plan of operations within the timeframes specified in Section 9.37 constitutes a rejection of the plan. The operator has a right to appeal this decision under 36 CFR §9.49.

### ENVIRONMENTAL COMPLIANCE

Numerous federal laws, regulations, executive orders, and NPS policies are used by the NPS to assist in its resource protection efforts. The following section summarizes the federal requirements that are used to protect the following major categories of park resources:

- All park resources – National Environmental Protection Act,
- Cultural Resources – National Historic Preservation Act,
- Threatened and Endangered Species and Their Habitat – Endangered Species Act,
- Floodplains – Executive Order 11988 and NPS Special Directive #93-4,
- Wetlands – Executive Order 11990 and NPS Director's Order #77-1 and accompanying Procedural Manual, and
- Coastal Natural Resource Areas – Coastal Zone Management Act and approved state coastal zone management program.

The following section includes a description of the resource, an overview of the compliance process, and operating requirements (stipulations) to protect the particular resource, and a flowchart illustrating the process taken by the NPS (and operator) to comply with these requirements. Tasks that are required by the oil and gas operator are shown in **bold** on each of the flowcharts.

A list of the federal, state and local permits that may be required for nonfederal oil and gas operations is summarized in Table 2.4.

A description of most of the federal laws, executive orders, and NPS policies that the operator must comply with in order to conduct oil and gas operations in units of the National Park System is presented in *Appendix B*.

### NATIONAL ENVIRONMENTAL POLICY ACT

The NPS plan of operations permitting process requires compliance with the National Environmental Policy Act (NEPA). NEPA mandates that federal agencies assess the environmental effects (impacts) of proposed federal actions, including approving permits for private actions on federal land or involving federal resources. The analysis of environmental effects in the NEPA document will be used by the regional director to determine if the operation meets the applicable approval standards at 36 CFR §9.37.

NEPA requires the NPS and other federal agencies to:

- include public input in the decision-making process,
- use a systematic approach which assures that all federal agencies fully explore alternative courses of action for the proposal,
- consider the environmental impacts of the proposed actions, and
- identify steps to mitigate environmental damage.

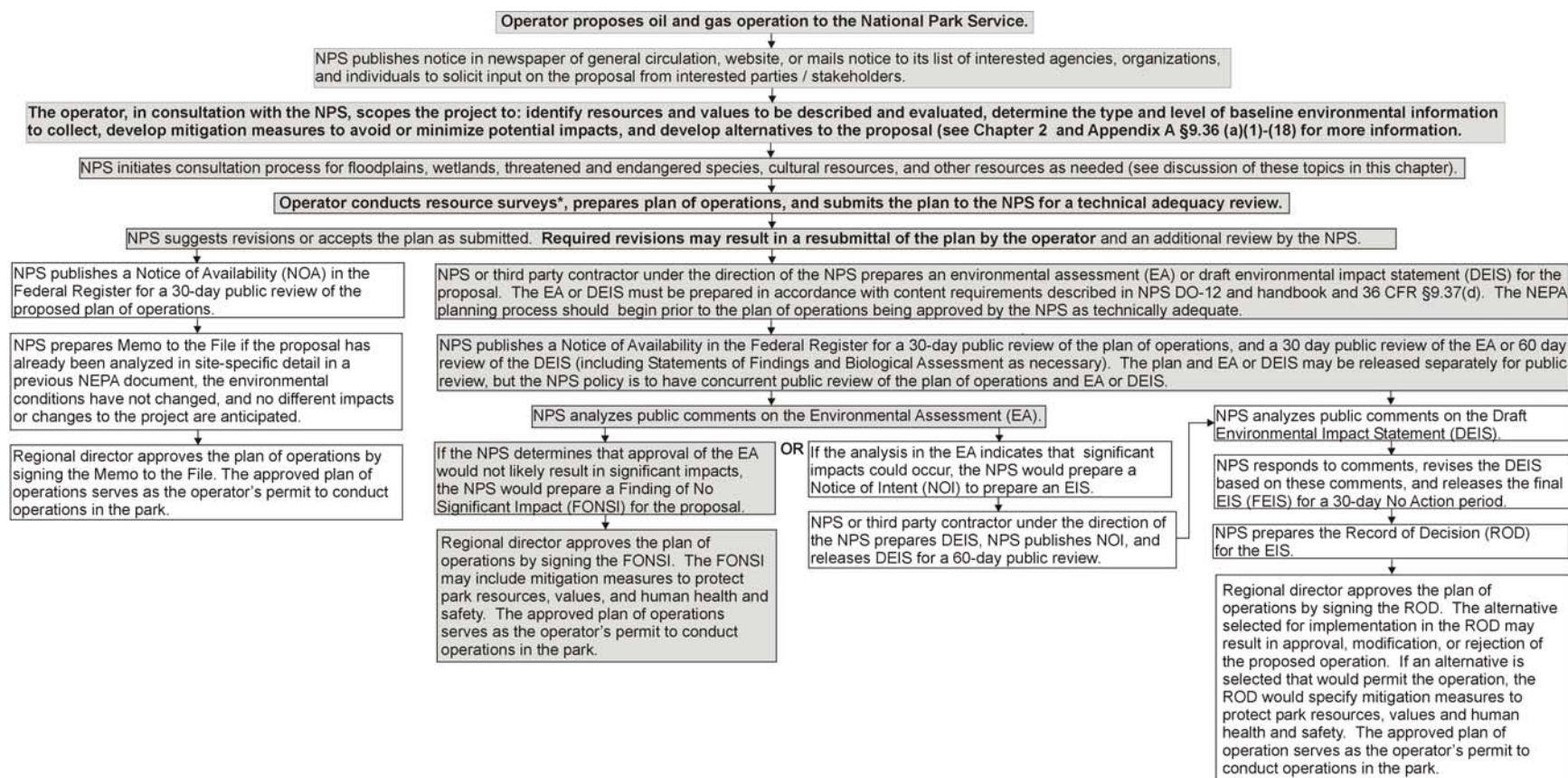
Once a plan is determined to be technically adequate, the NPS must prepare an environmental assessment (EA) or environmental impact statement (EIS) on the plan of operations (36 CFR §9.37(b)). Most often, an EA is the appropriate level of NEPA documentation. Environmental assessments must also be prepared for wells that are directionally drilled from outside a park to develop oil and gas underlying a park. If the project is highly controversial or there is the potential for major (significant) environmental impacts, the NPS would be required to prepare an environmental impact statement (EIS) on the proposal.

The NPS is responsible for the content and accuracy of the NEPA document (EA or EIS) and decision document (FONSI or ROD). The preparation of the environmental assessment or environmental impact statement must be done either by the NPS or under the direction of the NPS, typically through a third party contract. The operator's responsibility lies in supplying the necessary site-specific, resource information so that the NPS can analyze the potential impacts of the proposed operation on park resources and values.

Figure 2.1 illustrates the NEPA process required for a proposed plan of operations on NPS lands.



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\*Site-specific resource surveys may be required for cultural resources, threatened and endangered species, floodplains, wetlands, and other resources. See the applicable sections in this chapter for an overview of the data collection requirements, plan of operations, and other compliance requirements.

**NOTE:** A Categorical Exclusion (CE) has not been presented in the flowchart as one of the NEPA pathways, because there currently are no CEs that are applicable to nonfederal oil and gas operations (DO-12 §3.3-3.5).

**Figure 2.1. Generalized Plan of Operations and NEPA Process Flowchart for Nonfederal Oil and Gas Operations.**

Items shown in **bold** are the operator's responsibility. The **shaded** tasks represent the most common NEPA pathway for nonfederal oil and gas operations.



## PROTECTION OF CULTURAL RESOURCES

The National Historic Preservation Act (NHPA) protects cultural resources, including archeological resources, historic sites and structures, cultural landscapes, and ethnographic resources. Under Section 106 of the Act, potential impacts to cultural resources (referred to as historic properties) must be determined once an “undertaking” is identified. This section of the handbook outlines the Section 106 process the NPS uses to protect historic properties whenever an undertaking occurs. Figure 2.2 illustrates the cultural resource compliance process and the responsibilities of the operator and NPS.

In order to protect cultural resources, the following stipulations are required for all nonfederal oil and gas operations in NPS units.

### Stipulations for Protecting Cultural Resources

1. **Cultural Resource Surveys.** Cultural resource surveys must be conducted to document the location and significance of any cultural resource (includes various components of archeological, ethnographic, historic architectural, and historic landscape resources) that might be affected by operations (36 CFR §9.36 (a)(16)(i), 36 CFR §63, 36 CFR §800.4).

Cultural resource surveys must be conducted by qualified cultural resource professionals who have knowledge of, and experience with, the specific cultural resources in question. A final report must be prepared for the cultural resource survey that allows the NPS, in conjunction with the State Historic Preservation Office (SHPO) and Tribal Historic Preservation Office (THPO) to determine National Register of Historic Places (NRHP) eligibility and effect (no effect, no adverse effect, or adversely effect). Additional work beyond the initial survey may be necessary before a Determination of Eligibility (DOE) on the National Register of Historic Places can be made.

National Park Service cultural resource professionals, in conjunction with the SHPO/THPO must determine whether the existing survey information is adequate and up-to-date. If cultural resource surveys have been previously conducted in the proposed operations area, the NPS/SHPO/THPO cultural resource experts determine the continuing adequacy of the survey(s). In some cases an updated survey may not be necessary.

2. **Plan Work to Avoid Known Cultural Resources.** If this is not possible, assess and mitigate effects on National Register eligible or listed properties in consultation with State Historic Preservation Office and Advisory Council on Historic Preservation (36 CFR §800.3-800.9).
3. **Cultural Resource Monitoring of Operations.** Operations shall employ a qualified archeologist to monitor all ground-disturbing activities, including maintenance activities (36 CFR §9.47(b)). Qualified archeologists are those who meet the Secretary of Interior Standards and Guidelines for Archeology and Historic Preservation.

Ground disturbance is defined as earth-moving activities, including rutting, trenching, and blading across roads, storage areas, heavy equipment parking areas, and other related areas including disturbance resulting from removal of fill brought in to create roads or wellpads. Because the range of environments and cultural resources varies a great deal among park units, the operator and park staff must define what does not constitute ground-



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disturbing activities. All newly recorded archeological sites will be recorded both on state computerized sites forms and NPS Archeological Sites Management Information System (ASMIS) forms. GPS locations (requested in NAD 83) and site location maps will also be required.

4. **Inadvertent Discovery of Cultural Resources.** If any unknown cultural resources are discovered during the conduct of approved operations, and the resources might be altered or destroyed by the operations, the operator must cease operations in the immediate area and notify the park superintendent.

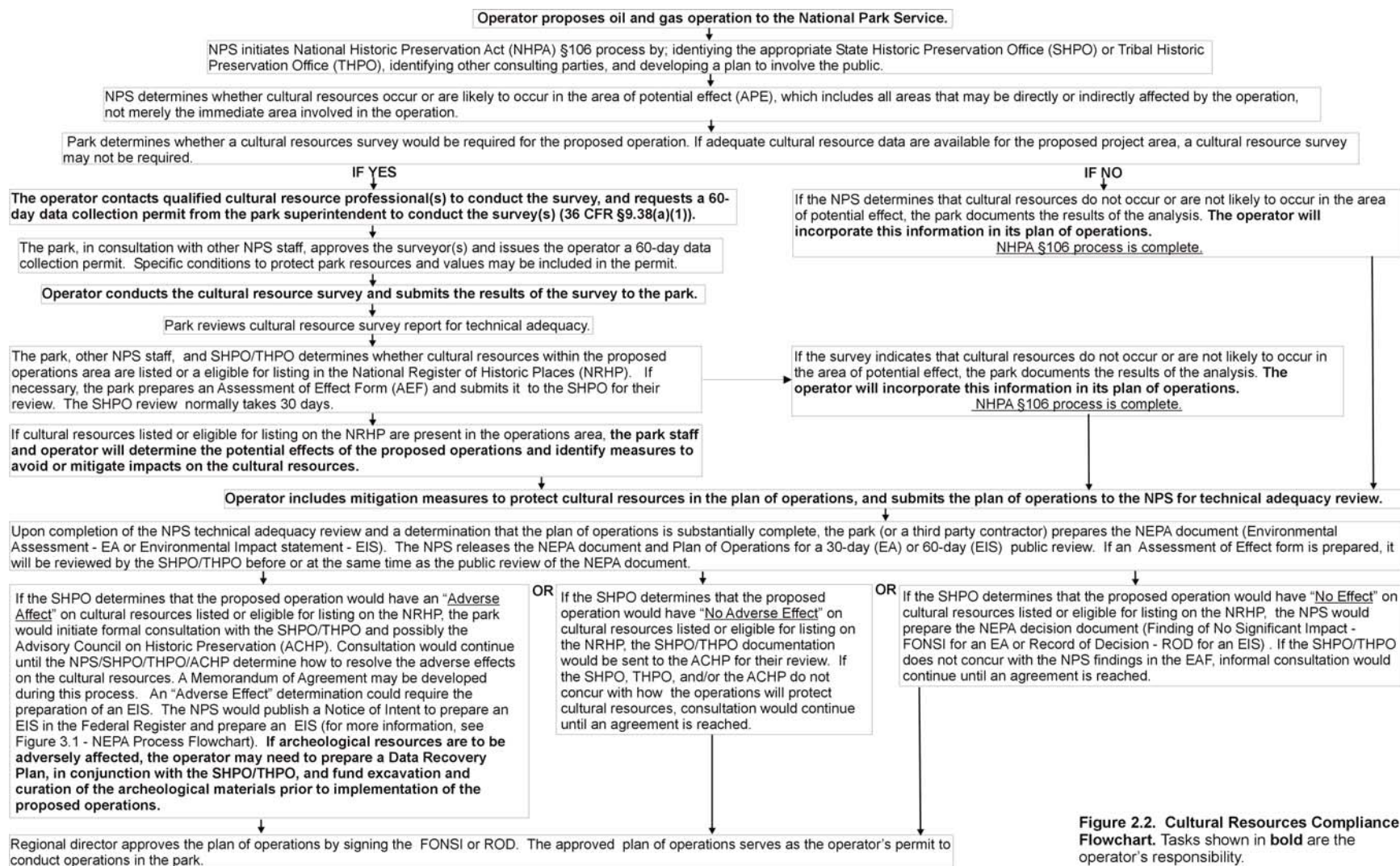
In the event that the discovery includes Native American human remains, associated funerary objects, sacred objects, or objects of cultural patrimony, the operator will comply with the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA - 25 U.S.C. §§ 3001-3013). Specific procedures to be followed are described in 36 CFR 10 §10.4.

In either case, the operator must leave the discovery intact until the superintendent grants permission to proceed with the operations (36 CFR §9.47(b)). Before any further activities occur, a qualified cultural resource expert will assess the cultural resources, evaluate their National Register eligibility, and consult with the SHPO. Minor recordation, stabilization, or data-recovery may be necessary during this action and will be conducted at the operator's expense. Until the eligibility of the discovered historic properties can be determined, no further disturbance to the cultural resources may occur. Any plans for mitigating the adverse impacts on historic properties will be subject to approval of the NPS, and it is the responsibility of the operator to provide for any necessary mitigation efforts.

If planned mitigation measures are likely to result in the excavation of Native American human remains, associated funerary objects, sacred objects or objects of cultural patrimony, mitigation will also require implementation of a Plan of Action as required by NAGPRA. Procedures of planned excavations are specified in 36 CFR §10.3.

5. **Damage to Previously Identified Sites.** If, in its operations, a nonfederal oil and gas operator damages, or is found to have damaged, any historic or prehistoric ruin, monument, or site, or any object of antiquity subject to the Antiquities Act of 1906 of the Archeological Resources Protection Act of 1979 (16 U.S.C. §470) and the National Historic Preservation Act, as amended, the operator will prepare and implement a data recovery plan at his/her expense. The operator will obtain at his/her expense, a qualified permitted archeologist to carry out the specific instruction of the NPS.
6. **Prohibition of Collecting Artifacts.** Employees and subcontractors working for the operator shall be informed that any collection of artifacts is punishable by law under the Antiquities Act of 1906 and the Archeological Resources Protection Act of 1979. Both fines and civil penalties are possible under these federal laws.

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**Figure 2.2. Cultural Resources Compliance Flowchart.** Tasks shown in **bold** are the operator's responsibility.



## PROTECTION OF THREATENED AND ENDANGERED SPECIES AND THEIR HABITAT

Section 7 of the Endangered Species Act, requires that the NPS ensure that an operator's proposed operation within a park unit does not jeopardize the continued existence of federally listed threatened and endangered plant and wildlife species or result in destruction or adverse modification of the critical habitat of these species. If the National Park Service determines that the proposed operation may affect a listed species or critical habitat, it must consult with the U.S. Fish and Wildlife Service (FWS) and / or the National Marine Fisheries Service (NMFS).

According to NPS Management Policies (2001), the NPS is also required to protect state listed threatened, endangered, rare, declining, sensitive, or candidate species and their critical habitats. The NPS may choose to control access to critical habitats for state listed species or may conduct active management programs similar to activities conducted to perpetuate the natural distribution and abundance of federally listed species.

Figure 2.3 illustrates the process that the NPS must use to protect threatened and endangered plant and animal species on NPS lands.

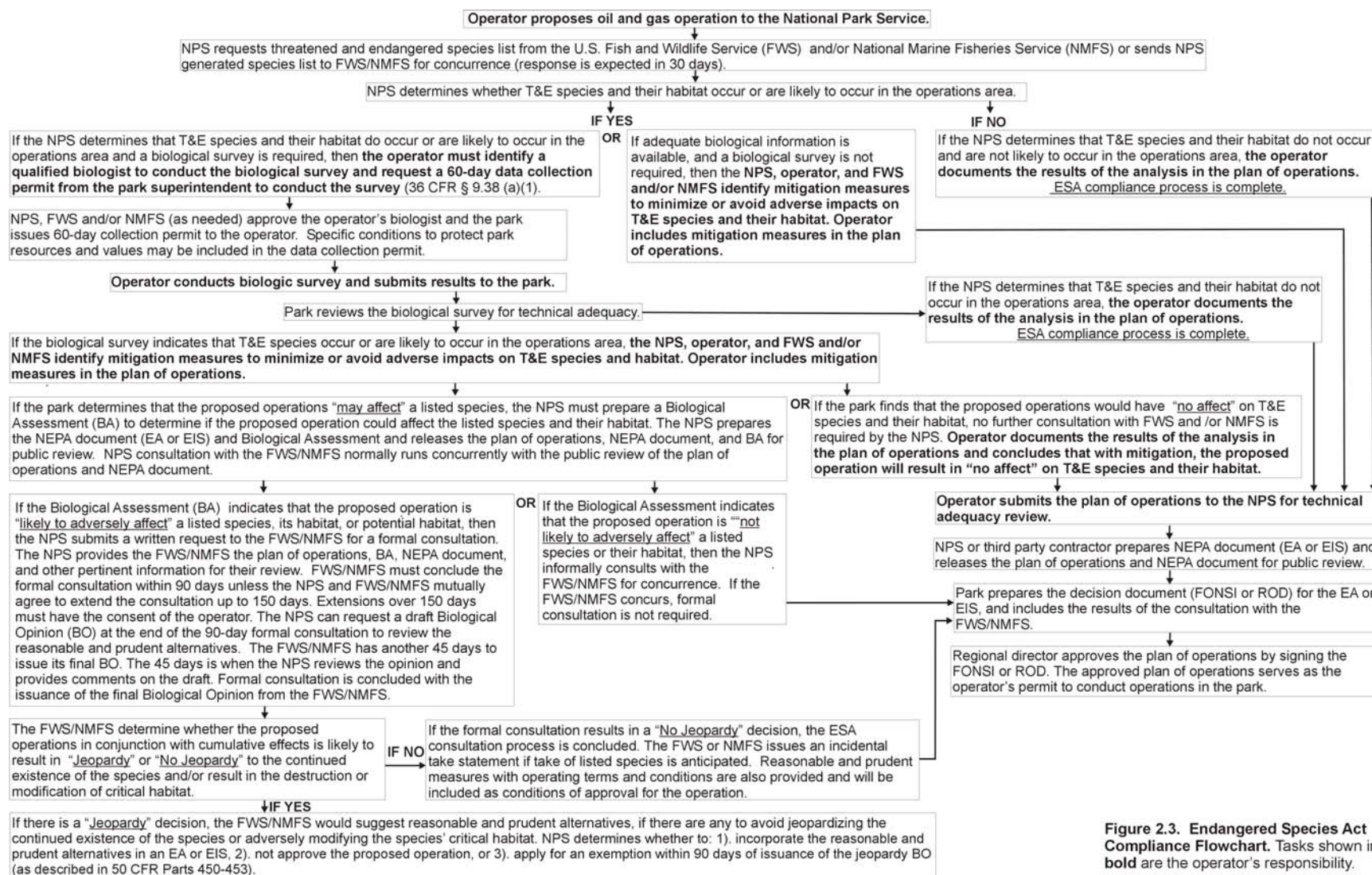
In order to protect threatened and endangered species and their habitat, the following stipulations are required for all nonfederal oil and gas operations in NPS units.

### Stipulations for Protecting Threatened and Endangered Plant and Animal Species

1. **Required Agency Consultations.** Prior to beginning operations, the NPS in consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service (if applicable), and state parks and wildlife departments must identify threatened, endangered, and sensitive species that may be present in the project area. If there is not adequate T & E survey data, operators may be required to conduct biological surveys in the proposed operations area (36 CFR §9.36(a)(16)(I); Endangered Species Act of 1973 -16 U.S.C. §§ 1531 et seq.; Executive Order 13186).
2. **Schedule Work to Avoid T&E Species.** Operators must schedule work during times least likely to affect threatened and endangered species (Endangered Species Act, 16 U.S.C. §§ 1531-1544, 50 CFR Parts 402 & 450).



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**Figure 2.3. Endangered Species Act Compliance Flowchart.** Tasks shown in bold are the operator's responsibility.





## PROTECTION OF FLOODPLAINS

Executive Order 11988, "Floodplain Management", dated May 24, 1977, was passed to ensure that short and long-term adverse affects associated with the occupancy and modification of floodplains will be avoided wherever possible. Where no practicable alternatives exist to siting oil and gas operations in a floodplain, mitigating measures (utilizing nonstructural methods when possible) will be implemented to minimize potential harm to life, property, and the natural values of floodplains. National Park Service Special Directive 93-4, "Floodplain Management Guideline," (August 11, 1993) provides requirements for implementing the floodplain protection and management actions under the executive order.

Figure 2.4 illustrates the process that the NPS must use to protect floodplains on NPS lands.

In order to protect floodplain functions and values, the following stipulations are required for all nonfederal oil and gas operations that are conducted within the 100-year, 500-year, or extreme floodplain in a NPS unit.

### Stipulations for Protecting Floodplains

1. **Delineate Floodplains.** Conduct a pre-operational analysis to adequately describe the natural environment that would be affected by the operations, including delineating floodplains. (36 CFR 9.36(a)(16)(i)).
2. **Use of Qualified Professionals.** Information on flood conditions and hazards, and development of appropriate floodplain management actions should be determined by qualified professionals (NPS Special Directive 93-4).
3. **Site Operations to Avoid Floodplains.** Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of any natural or man-made impoundments...unless specifically authorized by an approved plan of operations. If necessary, the operator must specifically request exemptions from this standard in the plan of operations and demonstrate that the exemptions are necessary for acceptable data quality, can be conducted with insignificant affects on park waters or manmade infrastructure, and result in overall resource impact reduction (36 CFR § 9.41(a)).
4. **Siting of Above-ground Flowlines and Gathering Lines and Oil and Gas Access Roads.** The construction and operation of above-ground flowlines, gathering lines, and roads used exclusively to access oil and gas operations fall into the NPS Class I Actions category. The associated regulatory floodplain is the 100-year floodplain (EO 11988 § 3 (b)).  
  
-Flowlines, gathering lines, and oil and gas access roads should not be constructed within the 100-year floodplain unless there is no practicable alternative. Where such operations must be located within the 100-year floodplain, appropriate mitigation measures must be taken to flood-proof the lines and roads to minimize structural and environmental risks associated with flooding.
5. **Siting of Drilling and Production Operations and Oil and Gas Storage Facilities.** Actions that would create an added disastrous dimension to the flood event (called critical actions) are Class II Actions. The associated regulatory floodplain is the 500-year



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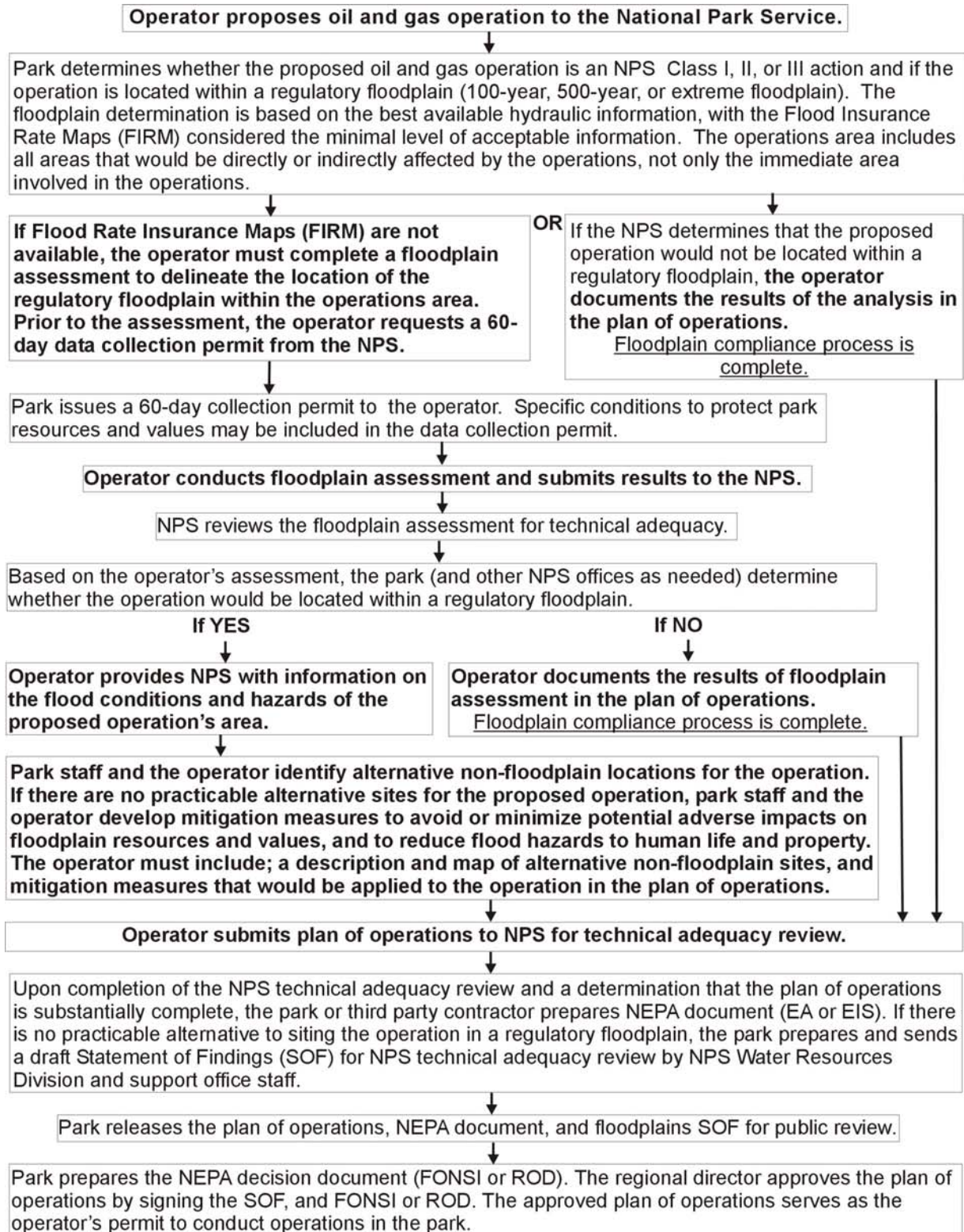
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floodplain. Examples of critical actions include well drilling, construction and operation of treatment and storage facilities, and storage of toxic, hazardous and/or water-reactive materials. Most oil and gas operations are classified as critical actions (Class II) (Executive Order 11988, § 3 (b)).

-Drilling operations, wellheads, oil and gas processing and storage facilities and equipment, including heater treaters, separators, oil and produced water storage tanks, etc. should not be located within the 500-year floodplain (critical action floodplain) unless there is no practicable alternative. Where such operations must be located within the 500-year floodplain, appropriate mitigation measures must be taken to flood-proof or elevate the site to minimize structural and environmental risks associated with flooding.

-Storage tanks shall be firmly secured to reduce risk of tank failure during high winds and flooding. Storage tanks shall be emptied and filled with water in preparation for hurricanes or flooding.

6. **Flood Warning System.** Develop an adequate flood warning system which monitors one or more physical parameters (e.g., rainfall, runoff, streamflow) and provides warning of an impending flood to the operator, operator's contractors and subcontractors, visitors and park personnel with adequate time to permit evacuation; and signs, high-water indicators, and other information indicating that a site is flood-prone and suggesting appropriate actions in the event of flooding (Special Directive 93-4 § VI(G)(2)).
7. **Emergency Response Plan.** Prepare an Emergency Response Plan to ensure safe operating procedures in the event of a reportable quantity spill; damage to wells, pipelines, or other structures; fire; explosion; medical evacuation; or other emergencies such as strong winds, heavy rainfall, swift currents, and flooding and secure storage tanks and other production equipment to reduce structural and environmental risks (36 CFR § 9.36(a)(10)(vi), 40 CFR Part 112).



**Figure 2.4. Floodplains Protection Compliance Flowchart.**  
Tasks shown in **bold** are the operator's responsibility.



## **PROTECTION OF WETLANDS**

Executive Order 11990, "Protection of Wetlands", dated May 24, 1977, requires that agencies avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative and that all practicable measures to minimize harm to wetlands have been incorporated into the proposal. Where no practicable alternatives exist, mitigating measures will be implemented to minimize potential harm to natural values of wetlands. The NPS policy for protecting wetland resources and values are provided in Director's Order #77-1 and its accompanying Procedural Manual.

Figure 2.5 illustrates the process that the NPS must use to protect wetlands on NPS lands.

In order to protect wetland functions and values, the following stipulations are required for all nonfederal oil and gas operations in NPS units.

### **Stipulations for Protecting Wetlands**

1. **Site Operations to Avoid Streams and Impoundments.** Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of any natural or man-made impoundments...unless specifically authorized by an approved plan of operations. If necessary, the operator must specifically request exemptions from this standard in the plan of operations and demonstrate that the exemptions are necessary for acceptable data quality, can be conducted with insignificant affects on park waters or manmade infrastructure, and result in overall resource impact reduction (36 CFR § 9.41(a)).
2. **Delineate Wetlands.** Wetlands (Cowardin classification system and jurisdictional wetlands) must be delineated by the operator where proposed operations would directly or indirectly adversely impact wetlands. The wetland delineations shall be approved by the U.S. Army Corps of Engineers and the Water Resources Division of the National Park Service, and incorporated into the operator's plan of operations and the NPS prepared Statement of Findings (36 CFR 9.36(a)(16))(i), NPS Director's Order 77-1, and NPS Procedures Manual 77-1 § 5.1).
3. **Compensation for Loss of Wetlands.** When proposed operations cannot avoid direct and/or indirect adverse impacts on wetlands, the operator shall compensate for direct and indirect impacts on wetlands by restoring degraded or former wetland habitats. Compensation will be at a minimum 1:1 ratio. In other words, at least one acre of wetlands must be restored for each acre of wetland that is destroyed or degraded. The focus will be on the replacement of comparable wetland types and functions, not just wetland acreage. Compensation shall be performed prior to or at the same time impacts associated that approved oil and gas operations occur (NPS Director's Order 77-1 and NPS Procedures Manual 77-1 § 5.2(C)).

Final compensation ratios may need to be greater than 1:1 in cases where:

- the functional values of the site being impacted are determined to be high and the restored wetlands will be of lower functional value;
- it will take a number of years for the restored site to become fully functional; or
- the likelihood of full restoration success is unclear.

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If the adverse impacts on wetlands (direct plus indirect impacts) from the entire project totals less than 0.1 acre, then wetland compensation is strongly encouraged but may be waived by the NPS if the loss of wetland functions is considered to be minimal.

The compensation site shall be located in the park. Compensation shall be performed prior to or at the time impacts associated with proposed nonfederal oil and gas operations are anticipated to occur. On completion of operations that have directly and/or indirectly impacted wetlands, restoration of the site shall be done to return the impacted wetlands to their pre-disturbance condition.

Areas within the park that may be restored as compensation for wetland impacts associated with nonfederal oil and gas operations, in priority order, are:

- poorly restored abandoned oil and gas access roads and drilling locations, and
- wetlands that have been adversely affected by past actions.

When the minimum 1:1 wetland compensation ratio cannot be performed in the park because no areas remain to be restored, operators shall be required by the NPS to perform the minimum 1:1 wetland compensation ratio in another NPS unit.

When potential wetland impacts from proposed nonfederal oil and gas operations would require wetland compensation ratios greater than 1:1, operators would be required to perform the initial 1:1 compensation by restoring disturbed wetland areas as described above. Operators would then have two options to perform the remaining wetland compensation: by restoring additional disturbed wetland areas as described above, or by performing a commensurate portion of an “in-lieu” project by constructing segments of educational and interpretive elevated boardwalks at sites designated by the park superintendent. These wetland projects shall be decided upon, planned and designed by the park, and all environmental compliance performed by the NPS. A commensurate portion would be based on the costs for the initial 1:1 compensation described above.

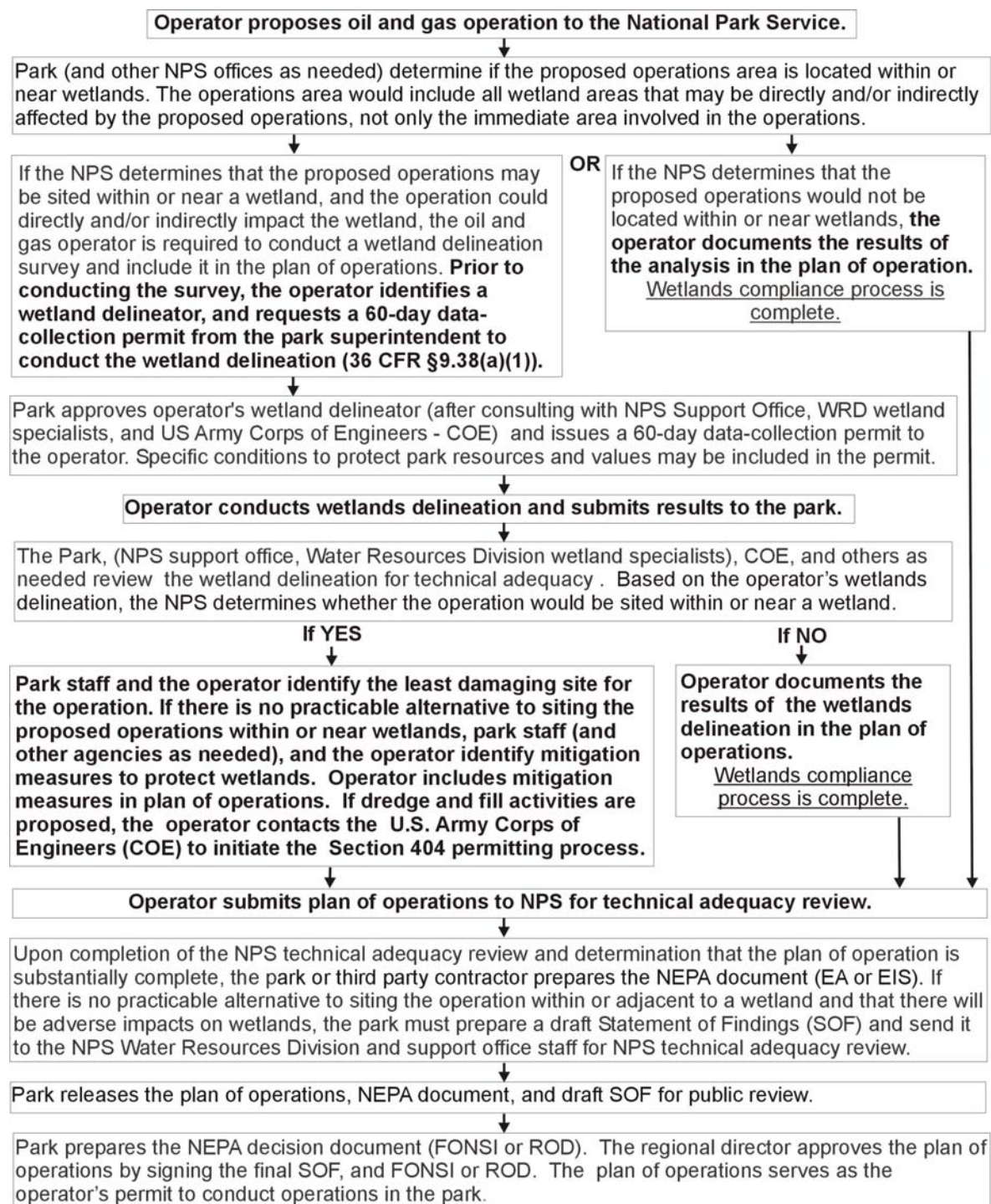
In addition to the operating stipulations listed above, the following Best Management Practices (BMPs) are required when an operation has the potential to have adverse impacts on wetlands (NPS Procedures Manual 77-1, Appendix 2):

1. **Effects on Hydrology:** Action must have only negligible effects on site hydrology, including flow, circulation, velocities, hydroperiods, water level fluctuations, and so on.
2. **Water Quality Protection and Certification:** Action is conducted so as to avoid degrading water quality to the maximum extent practicable. Measures must be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway of wetlands. Action is consistent with state water quality standards and Clean Water Act Section 401 certification requirements (check with appropriate state agency).
3. **Erosion and Siltation Controls:** Appropriate erosion and siltation controls must be maintained during construction, and all exposed soil or fill material must be permanently stabilized at the earliest practicable date.

4. **Effects on Fauna:** Action must have only negligible effects on the normal movement, migration, reproduction, or health of aquatic or terrestrial fauna, including at low flow conditions.
5. **Proper Maintenance:** Structure or fill must be properly maintained so as to avoid adverse impacts on aquatic environments or public safety.
6. **Heavy Equipment Use:** Heavy equipment use in wetlands must be avoided if at all possible. Heavy equipment used in wetlands must be placed on mats, or other measures must be taken to minimize soil and plant root disturbance and to preserve pre-construction elevations.
7. **Stockpiling Material:** Whenever possible, excavated material must be placed on an upland site. However, when this is not feasible, temporary stockpiling of excavated material in wetlands must be placed on filter cloth, mats, or some other semi-permeable surface, or comparable measures must be taken to ensure that underlying wetland habitat is protected. The material must be stabilized with straw bales, filter cloth, or other appropriate means to prevent reentry into waterway or wetland.
8. **Removal of Stockpiles and Other Temporary Disturbances During Construction:** Temporary stockpiles in wetlands must be removed in their entirety as soon as practicable. Wetland areas temporarily disturbed by stockpiling or other activities during construction must be returned to their preexisting elevations, and soil, hydrology, and native vegetation communities must be restored as soon as practicable.
9. **Topsoil Storage and Reuse:** Revegetation of disturbed areas should be facilitated by salvaging and storing existing topsoil and reusing it in restoration efforts in accordance with NPS policies and guidance. Topsoil storage must be for as short a time as possible to prevent loss of seed and root viability, loss of organic matter, and degradation of the soil microbial community.
10. **Native Plants:** Where plantings or seeding are required, native plant material must be obtained and used in accordance with NPS policies and guidance. Management technologies must be implemented to foster rapid development of target native plant communities and to eliminate invasion by exotic or other undesirable species.



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**Figure 2.5. Wetlands Protection Compliance Flowchart.**

Tasks shown in **bold** are the operator's responsibility.





### MANAGEMENT OF COASTAL RESOURCES

The Coastal Zone Management Act (CZMA) was enacted to preserve, protect, develop, and where possible, restore or enhance the resources of the nation's coastal zone. The purpose of the Act is to improve the nation's management of coastal resources. Specific concerns in the coastal zone include; the loss of living marine resources and wildlife habitat, decreases in open space for public use, and shoreline erosion. The "coastal zone" means the coastal waters and the adjacent shorelands of the United States. It also includes coastal zones of the Great Lakes.

The CZMA established a state-federal partnership in which the states take the lead in managing their coastal resources by developing state CZM programs and plans, while the federal government (U.S. Department of Commerce, National Oceanic and Atmospheric Administration) provides financial and technical assistance. The Act requires federal agencies to act in a manner consistent with federally approved state management programs. Federal consistency under the CZMA means that federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone must be consistent with the enforceable policies of a coastal state's or territory's federally-approved coastal management program. In states that do not have a coastal zone management program approved by the Secretary of Commerce, the requirement for a consistency review and state concurrence does not apply.

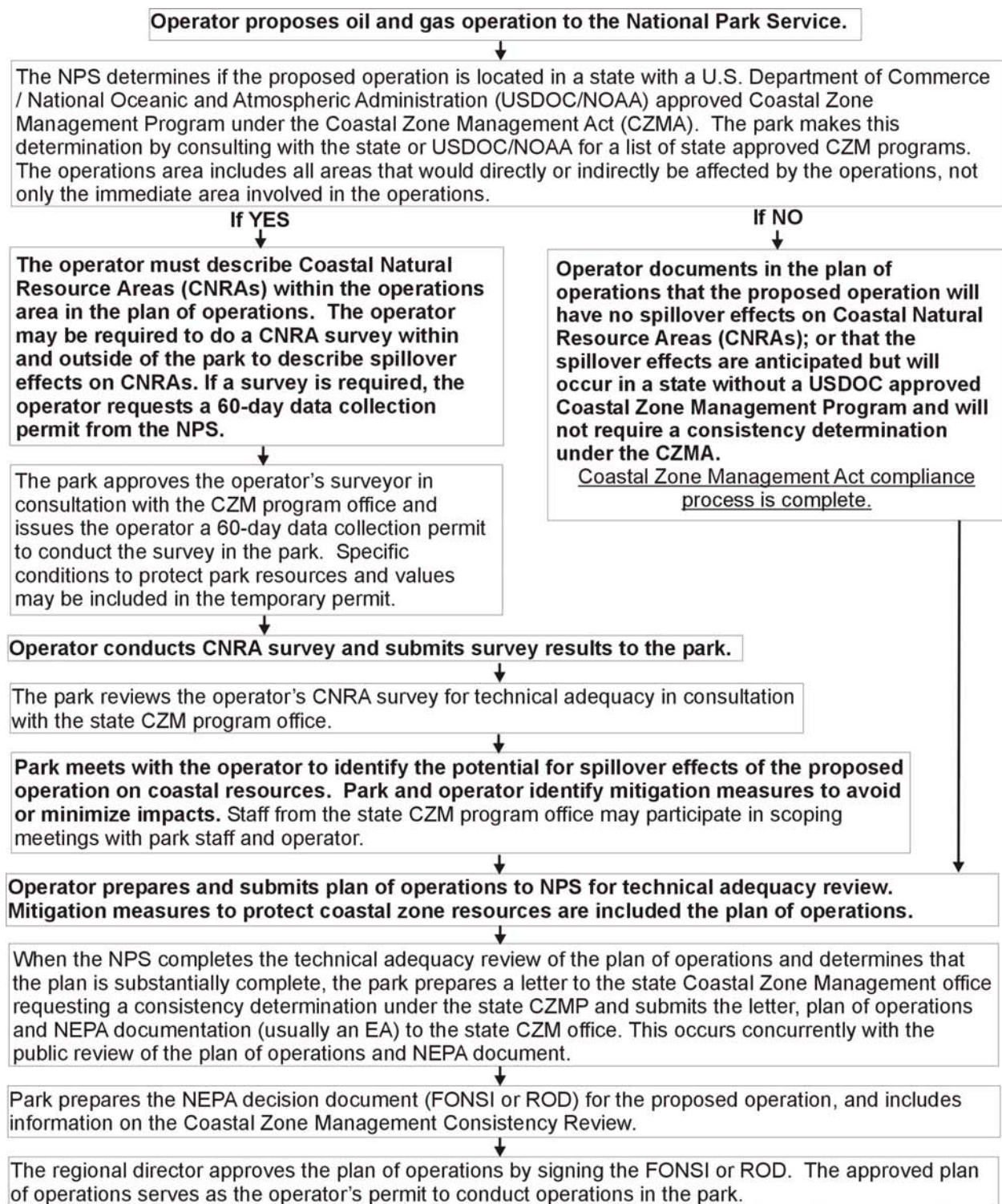
All federal agency activities, whether in or outside of the coastal zone, are subject to the consistency requirements of Section 307(c)(a) of the CZMA if the activities affect natural resources, land uses, or water uses in the coastal zone. In addition, the NPS Management Policies (2001) require that the NPS comply with state coastal zone management plans prepared under the Coastal Zone Management Act.

When the NPS is considering issuing a permit for nonfederal oil and gas operations under its 36 CFR 9B regulations, and the proposed operation may have a spillover effect on Coastal Zone Natural Areas (CNRAs), the NPS will consult with the state agency responsible for carrying out the state approved CZM program for a consistency determination. In these cases, the state agency provides a consistency certification within 45 days of receipt of an administratively complete consistency certification, or the action is presumed to be consistent.

Figure 2.6 illustrates the process that the NPS must use to protect coastal resources on NPS lands.



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**Figure 2.6. Generalized Coastal Zone Management Compliance Flowchart.** Tasks shown in **bold** are the operator's responsibility.





## LOCAL, STATE, AND FEDERAL PERMITS FOR NONFEDERAL OIL AND GAS OPERATIONS

The permits listed in Table 2.4 may be required for a nonfederal oil and gas operation, depending on the type of operation, its scope, and location. The operator, not the National Park Service, is responsible for obtaining the permits listed in the following table.

**Table 2.4. Federal, state and local permits that may be required for a nonfederal oil and gas operation in units of the National Park System.**

PERMIT	LAW OR REGULATION	RESPONSIBLE AGENCY
Plan of operations	Nonfederal Oil and Gas Rights Regulations, 36 CFR 9B	National Park Service
Permits to drill a well, treat and store oil and gas products, plug/abandon a well, and construct/operate intrastate oil and gas pipelines	Statewide oil and gas rules or regulations	state oil and gas division
Special use permit to construct and maintain surface for a transpark oil and gas pipeline in an existing right-of-way	36 CFR Parts 1-5	National Park Service
Interstate oil and gas pipeline permit	49 CFR Subtitle B, Ch. 1, Parts 190-199	U.S. Department of Transportation
Underground injection well permit	Safe Drinking Water Act of 1974	Environmental Protection Agency, via state oil and gas division or state water quality division
Prevention of significant deterioration (PSD) of air quality and/or visibility permit	Clean Air Act	Environmental Protection Agency, via state air quality division
National pollutant discharge elimination system (NPDES) permit	Federal Water Pollution Control Act of 1972 (a.k.a. Clean Water Act), Section 402	Environmental Protection Agency, via state water quality division
Section 10 permit to obstruct or alter a navigable waterway of the United States	Rivers and Harbors Act of 1899	U.S. Army Corps of Engineers
Section 404 permit to discharge dredge or fill material into waters of the U.S.	Federal Water Pollution Control Act of 1972 (a.k.a. Clean Water Act), Section 404	Environmental Protection Agency, via U.S. Army Corps of Engineers
Integrated pest management (IPM) permit to use a pesticide or herbicide	Federal Insecticide, Fungicide, and Rodenticide Act	National Park Service, via the NPS plan of operations
Floodplain management permit	State or Local floodplain regulations	State or local floodplain management agency
Permit to "take" a T/E species	Endangered Species Act	U.S. Fish and Wildlife Service and/or National Marine Fisheries Service
Determination of consistency with state Coastal Zone Management Plan	Coastal Zone Management Act	Department of Commerce, via state coastal zone management division
Archeological Resources Protection Act (ARPA) permit "to excavate or remove any archeological resources located on public lands or Indian lands and to carry out activities associated with such excavation or removal."	Archeological Resources Protection Act of 1979	National Park Service

## **ADDITIONAL REQUIREMENTS**

### **THIRD PARTY MONITORING**

Depending on the nature and extent of the nonfederal oil and gas operation(s), the NPS may require an operator to hire a third party monitor to oversee the operation(s). Third party monitoring would be required by the NPS to ensure operator compliance with the terms of the approved plan of operations and protection of park resources and values. The NPS may develop stipulations that specify conditions of the third party monitoring (36 CFR 9.37(f)<sup>3</sup>). Examples of additional stipulations include, but are not limited to:

- The NPS must approve the selection of the monitor and the terms of the operator's contract with the third party monitor;
- The third party monitor would be paid by the operator,
- The contract must include a provision requiring the monitor to report directly to the NPS, and not to the company, and identify the frequency of reports (daily, weekly, monthly); and
- The NPS may suspend the plan of operations if the quality of the monitoring performed is unsatisfactory to the NPS.

### **THE APPLICABILITY OF SOLID WASTE DISPOSAL REGULATIONS TO NONFEDERAL OIL AND GAS OPERATIONS**

Regulations at 36 CFR Part 6 govern the handling of "solid waste" in park units. While the Part 6 regulations cover activities other than mining, this summary will address only that portion of the Part 6 regulations dealing with mining activities, which includes oil and gas. Part 6 applies on wholly private, state and federal lands within the park boundary and applies regardless of the jurisdictional arrangement in a park.

"Solid Waste from Mining" is defined as:

"Mining overburden, mining byproducts, solid waste from the extraction, processing and beneficiation of ores and minerals, drilling fluids, produced waters, and other wastes associated with exploration, development, or production of oil, natural gas or geothermal energy and any garbage, refuse or sludge associated with mining and minerals operations."

The Mining provision of Part 6 distinguishes between "new" and "existing" operations.

#### **New Operations**

New operations are defined as those proposed after January 25, 1995.

These operations "may not establish or operate a new solid waste disposal site within a unit." This means that any waste generated must be used for reclamation (temporary stockpile of waste is acceptable, if used for reclamation or removed at the end of operations), taken to an

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<sup>3</sup> Under this provision all approved plans are conditioned upon the superintendent's right to access an operation to monitor and insure compliance with a plan of operations. Since under this scenario a third party will handle monitoring, the superintendent can exercise his or her right to access and monitor the operation through the third party via specific stipulations.

approved NPS landfill, or taken out of the park to a municipal landfill. Approved 9B plans usually cover the handling of solid waste generated by the operation.

### **Existing Operations**

Existing operations are defined as those in operation as of January 25, 1995.

If the existing operation is EXEMPT from the 9B regulations:

- The operator must request a part 6 permit. Without the Part 6 permit the operator is subject to the §6.12 penalty provision (criminal penalties) or suspension.

If the existing operation is UNDER A 9B PLAN:

- The 9B plan already covers the handling of solid waste

If the operator submits a plan revision and it solid waste is generated as a result of the plan, that solid waste must be used for reclamation (temporary stockpile of waste is acceptable if it is used for reclamation or removed at the end of operations), taken to an approved NPS landfill, or taken out of the park to a municipal landfill.





## CHAPTER 3

# GEOPHYSICAL EXPLORATION

This chapter includes the following information:

- NPS permitting process checklist for geophysical operations,
- Plan of operations information requirements for geophysical operations,
- Required operating stipulations,
- Recommended mitigation measures, and
- Pictorial overview of geophysical operations.

### NPS PERMITTING PROCESS CHECKLIST FOR GEOPHYSICAL EXPLORATION

The following checklist outlines the permitting process for geophysical operations in units of the NPS. The items on the checklist are described throughout this handbook. This checklist can be used by an oil and gas operator to make sure that all of the required steps have been completed to prepare and have a plan of operations approved by the National Park Service.

- ☐ Operator contacts park regarding interest in conducting oil and gas operations (for more information see CH 2).
- ☐ Operator provides written documentation demonstrating right to conduct operations (for more information see CH 2).
- ☐ Operator meets with park staff to scope proposed project (for more information see CH 2).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information see CH 2).
- ☐ Operator requests temporary access permit to gather information needed to complete the plan of operations (for more information see CH 2).
- ☐ Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area (for more information see CH 2).
- ☐ Operator prepares plan of operations and submits draft plan to the National Park Service (for more information see CH 3).

The Plan of Operations for Geophysical Exploration must include the following sections:

- ☐ I. Lease and Ownership Information
- ☐ II. Maps and Plats
- ☐ III. Timeline for Operations
- ☐ IV. Description of Operations
- ☐ V. Spill Control Plan
- ☐ VI. Reclamation Plan
- ☐ VII. Affidavits and Statements
- ☐ VIII. Other Applicable Permits
- ☐ IX. Background Environmental Information
- ☐ X. Relationship to Park Planning Documents

## CHAPTER 3 – GEOPHYSICAL EXPLORATION

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- ☐ NPS performs a completeness and technical review of the plan of operations (for more information see CH 2).
- ☐ Operator revises plan of operations, if necessary (for more information see CH 2).
- ☐ Park staff prepares NEPA document (or adopts operator's or consultant prepared NEPA document), incorporates other environmental compliance, and initiates mandated consultations with other agencies (for more information see CH 2).
- ☐ Park completes public review process, finalizes decision documents, and notifies the operator that the plan has been approved, conditionally approved, or rejected (for more information see CH 2).
- ☐ Operator agrees to conditions of approval (if any), submits applicable state and federal permits, and files performance bond with the NPS (for more information see CH 10).

## PLAN OF OPERATIONS INFORMATION REQUIREMENTS

This list of requirements is presented to assist National Park Service personnel and nonfederal oil and gas operators in defining specific information that should be included in a proposed plan of operations for geophysical operations. These requirements are based on the regulatory provisions under 36 CFR §9.36. This information list can also be used by the NPS to determine if a proposed plan of operations is complete and sufficiently detailed to merit "official acceptance" for review and analysis in accordance with the regulations at 36 CFR §9.36(c).

A plan of operations may not need to address all of the information requirements presented in this list. The operator and NPS staff will narrow the list during project scoping. In some instances, the NPS may require additional information not specifically listed here so that it may effectively analyze the proposed operation. Such additional information also would be identified during project scoping.

The operator will submit the plan of operations, tender the performance bond, and be the responsible party for compliance with the plan of operations.

### I. LEASE AND OWNERSHIP INFORMATION

The purpose of this section is to identify the "operator" as defined under the NPS regulations, to document the operator's right to conduct oil and gas activities under the rights associated with the mineral estate, and to identify primary company contacts for planning, field operations, and emergencies.

- A. Name(s) and address(es) of:
  - 1. Surface owner(s) (if other than the NPS), and
  - 2. Lessor (mineral owner).
- B. Name, address, and telephone number of the operator including:
  - 1. Person accountable for operations,
  - 2. Field representative, and
  - 3. Contact person in case of spill, emergency, etc.
- C. Copy of the instrument(s) demonstrating the operator's right to conduct geophysical operations for all tracts of land within the project area. Examples include:
  - 1. Deed or affidavit of mineral ownership,
  - 2. Lease documents, or
  - 3. Written consent of mineral right holder(s) for the operator to obtain geophysical data.

### II. MAPS AND PLATS

The purpose of this section is to graphically show the operator's mineral tracts and the area of proposed activities in relation to the park, and the locations of man-made or environmental hazards that may affect the methods of operations.

## **CHAPTER 3 – GEOPHYSICAL EXPLORATION**

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- A. Provide map(s) showing the proposed seismic survey area. The map(s) should be on the appropriate 1:24,000 scale USGS quadrangle(s) (7.5 minute series) and identify the following:
1. NPS park unit boundary,
  2. Each mineral tract or lease cross referenced to the “right to operate” information provided in Section I. C.,
  3. Proposed locations of source and receiver lines within the park,
  4. Locations of pipelines, wells, or any other potential hazards within a one-mile radius of the proposed survey lines, and
  5. Locations of environmentally sensitive areas that might require avoidance or other mitigation measures.

### **III. TIMELINE FOR OPERATIONS**

The purpose of this section is to identify when operations will be conducted and how long they will last. Any proposals to avoid or modify operations due to season timing restrictions should also be noted in this section.

- A. Provide an estimated timeline for the proposed operation, including the following information (as applicable):
1. Estimated date to begin equipment transportation to the staging area,
  2. Estimated date to begin geophysical operations,
  3. Estimated geographic sequence of operations for the 3D seismic survey,
  4. Anticipated longevity of operations,
  5. Estimated date when reclamation will begin, and
  6. Estimated time to complete reclamation.

### **IV. DESCRIPTION OF OPERATIONS**

The description of operations should provide enough detail on the proposed methods, sequence, and equipment to assess the proposal's affects on the environment. Thus the amount of information in this section will vary depending both on the planned activities and the environment where they will be conducted. Address the following requirements as applicable, providing enough detail for the NPS to have a clear understanding of the proposal.

- A. Methods, sequence of work, and all equipment to be used in acquiring seismic data (include photographs of equipment):
1. Vehicle description and use,
  2. Source point locations and line layout,
  3. Receiver lines configuration, and
  4. Energy sources (e.g. explosives, vibroseis trucks, etc.).

NOTE: Operators cannot use sources of water inside the park without written permission of the Regional Director. The Regional Director can only approve a plan of operations that uses a source of water from inside the park if one of two conditions exist: 1) the operator owns a superior water right, or 2) use of the water does not damage park resources (36 CFR §9.35).

- B. Description of all actions to control, minimize, or prevent damage to the recreational, biological, scientific, cultural, and scenic resources of the park. These include those measures (place, time, methods, equipment) that the operator and NPS identified during scoping and the onsite meeting to improve operations with respect to park resources and visitor safety (as well as any other measure developed by the operator during their plan preparation). This also includes all actions to be taken to comply with regulatory operating standards and state and federal permit requirements (as applicable). See Tables 3.1 and 3.2 for lists of operating stipulations and recommended mitigation measures for geophysical operations.
- C. Description of all security measures that will be used to ensure public health and safety.
- D. Statement that operator will comply with operating standards of 36 CFR §9.41-9.46. Requests for variances should be accompanied with supporting information.

## **V. SPILL CONTROL PLAN**

The requirements for a Contaminating or Toxic Substance Spill Control Plan (Spill Control Plan) are not specifically found in the 9B regulations. The NPS has combined informational requirements and operating standards from the 9B regulations to develop a format for a Spill Control Plan. See *Chapter 11 – Spill Control Plan* for the organization and content of a Spill Control Plan.

## **VI. RECLAMATION PLAN**

The reclamation plan will describe the actions needed to meet the general regulatory reclamation standards<sup>1</sup> as well as site-specific reclamation goals. The procedures of the reclamation plan then will be based on the disturbance anticipated from the proposed operations (as described in Section IV.), and reclamation expectations of the NPS as identified during project scoping. The operator should organize the reclamation plan with the following sections.

### **A. Reclamation Goals.**

1. Summarize the site-specific reclamation goals developed during project scoping. Site-specific goals might include a desired percent of vegetative ground cover, the type of plants, soil stabilization, rutting repair, etc.
2. State the timeframes for reclamation. Describe when the reclamation activities would begin, how long they would last, and the schedule for monitoring the results of the reclamation.

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<sup>1</sup> See §9.39, Reclamation Requirements, and Chapter 7, Surface Reclamation of this Handbook, pp. 7-22 through 7-23.

### **B. Reclamation Procedures.**

The regulations provide steps that need to be completed at a minimum to satisfy reclamation standards for operations on federal surface.<sup>2</sup> The following steps have been adjusted to fit the impacts from seismic operations that commonly need active reclamation. They may be used as an outline for developing the plan's reclamation procedures. The operator can describe the methods and equipment that will be used to accomplish each of these steps.

1. Restore areas of disturbance around shotholes including natural contours and vegetative state. (Note: The method(s) of plugging shotholes should be covered in the description of operations section of the plan.)
2. Remove all equipment, stakes and flagging, and all other man-made debris that resulted from operations.
3. Restore trails created or altered by vehicles to their natural contours and vegetative state.
4. Monitor and report on the results of the reclamation effort.
5. Remove or neutralize contaminating substances. The operator is responsible for removing soils or any other material that becomes contaminated. If there is reason to suspect soils or groundwater have been contaminated, the operator will likely need to collect and test samples to verify that contaminating substances have been removed or neutralized. Neutralization or removal of contamination means that contaminant concentrations will be reduced in soils (or groundwater) to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands and waters, provides for the safe movement of native wildlife, and which does not jeopardize visitor health and safety.

### **C. Reclamation Cost Estimate.**

The cost of reclamation in part determines the amount of the performance bond.<sup>3</sup> Provide an estimate of costs for a third party to complete the reclamation procedures in Item B above. Provide enough detail to support the total estimate.

The NPS will verify and use the cost estimates to set the reclamation portion of the performance bond. If the operator chooses not to provide the cost estimate for reclamation, the performance bond may be set at the maximum amount allowed by regulation<sup>4</sup>, which is \$200,000 per operator per park unit. If the operator already holds a \$200,000 bond for other operations in the same park, it is unnecessary for the operator to provide the cost estimate information required by this section.

## **VII. AFFIDAVITS AND STATEMENTS**

- A. Include an "Affidavit of Compliance" signed by an authorized official of the company as required by regulations at 36 CFR §9.36(a)(15). The affidavit should state that the proposed operations are in compliance with all applicable federal, state and local laws and regulations.

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<sup>2</sup> For operations on private surface estate, see page 7-18 of this Handbook

<sup>3</sup> See §9.48(d)(1) and page 10-3 of this Handbook

<sup>4</sup> See §9.48(d)(3) and page 10-3 of this Handbook

- B. Include a statement that the operator is fully accountable for all contractor and subcontractor compliance with the requirements of the approved plan of operations. This statement serves to clarify the operator's responsibility under the regulations at 36 CFR §9.41(g).
- C. Include a statement that the park superintendent, or his/her representative, shall have reasonable access to the site as is necessary to monitor and ensure compliance with the approved plan of operations. This statement serves to meet the regulatory requirement at 36 CFR §9.37(f).

## **VIII. OTHER APPLICABLE PERMITS**

- A. Include a copy of, or application for, all other permits required by other federal, state, or local agencies.

## **IX. BACKGROUND ENVIRONMENTAL INFORMATION**

The purpose of this section is to; present information on existing natural and cultural resources in the project area, assess the environmental impacts of the proposed operation, and discuss any technologically feasible alternatives for the proposed operation. Information that should be presented in this section will be determined during project scoping with park staff. The park may have some of the required natural and cultural resource information for the operator's use in preparing this section of the plan.

- A. Description of natural resources in the proposed operation area as they relate to the design and implementation of the seismic survey.
  - 1. Generalized description of the surface and subsurface geology for the area of operations. Include the following in the discussion:
    - a. surface formation(s) and thickness,
    - b. generalized description of the subsurface geology, including stratigraphy and depths to formation tops,
    - c. proposed total depth of penetration of seismic waves and depth of potential (or known) producing formations,
    - d. soil type(s) and engineering properties such as permeability, porosity, erosion potential, etc., and
    - e. description of paleontological resources known to occur or likely to occur in the project area (if applicable). The discussion should include the results of paleontological survey of the project area performed by a qualified paleontologist approved by the NPS.
  - 2. Hydrology and water quality, including the following:
    - a. proximity to surface water (intermittent or permanent watercourses, streams, ponds, lakes, springs, etc.),
    - b. depth to groundwater,
    - c. proximity to the base floodplain, 100 year floodplain, and 500 year floodplain, and
    - d. water quality in nearby surface water and/or shallow groundwater.
  - 3. Vegetation species composition in operation area, including predominant herbaceous, shrub, midstory and overstory species. (Note: This information is necessary to properly design a reclamation plan).



## **CHAPTER 3 – GEOPHYSICAL EXPLORATION**

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4. Wildlife species composition in the proposed operation area.
  5. Federal or state threatened / endangered plant or wildlife species that inhabit or frequent the proposed operation area.
  6. Air quality in the proposed operation area, including information on pollutant levels and existing point sources for pollutants in the area.
  7. General description of baseline noise levels in the proposed operation area, including local sources contributing to increased noise levels.
- B. Description of cultural resources in the proposed operation area (if new surface disturbance is proposed) should include the following information:
1. Background information on archeological and historic resources documented in the general area, including review of the National Register of Historic Places, and
  2. Results of an archeological and historic resource field survey of project area performed by a professional archeologist approved by the NPS.
- C. Identification and proximity of park visitor use areas (e.g., trails, campgrounds, public roads, picnic areas, overlooks etc.) from the proposed operation area,
- D. Description of the anticipated direct, indirect, and cumulative effects of the proposed operation on the park natural and cultural resources, and socioeconomic environments listed above. (This is the operator's opportunity to support their conclusions on environmental effects of their operations.)

## **X. RELATIONSHIP TO PARK PLANNING DOCUMENTS**

- A. The plan of operations must discuss how the proposed operation relates to park planning documents (General Management Plan, Oil and Gas Management Plan, etc.) in terms of considering and integrating operational measures described in the plan(s) to achieve park management objectives. The park oil and gas contact will furnish a copy of all applicable park planning documents upon request.

## REQUIRED OPERATING STIPULATIONS AND RECOMMENDED MITIGATION MEASURES FOR GEOPHYSICAL EXPLORATION

The tables in the following section describe required operating stipulations (Table 3.1) and recommended mitigation measures (Table 3.2) for geophysical exploration on NPS lands. The primary resource(s) that would be protected by the operating stipulations and mitigation measures listed in the tables are denoted by a ✓ symbol. Other resources that would benefit from the protective measures are marked with a + symbol.

Table 3.1 focuses on the National Park Service's Nonfederal Oil and Gas regulations at 36 CFR Part 9 Subpart B. but also includes many applicable operating stipulations required under other federal laws and regulations. To ensure compliance with all applicable legal and policy mandates, it is the operator's responsibility to consult with the appropriate federal, state, and local agencies prior to conducting operations on NPS lands.

**Table 3.1. Required operating stipulations for geophysical exploration operations on National Park Service lands**

Geophysical Exploration  Required Operating Stipulations   The applicable legal citation is noted in [parenthesis] after the stipulation.	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of any natural or man-made impoundments...unless specifically authorized by an approved plan of operations. If necessary, the operator must specifically request exemptions from this standard in the plan of operations and demonstrate that the exemptions are necessary for acceptable data quality, can be conducted with insignificant affects on park waters or manmade infrastructure, and result in overall resource impact reduction [36 CFR §9.41(a)].		+		✓	✓	+	✓	+	+		+
Discharge explosives at safe distances from pipelines, telephone lines, railroad tracks, roads, power lines, water wells, oil and gas wells, oil and gas production facilities, buildings, etc. Use accepted industry minimum safe offset distances, unless otherwise specified [36 CFR §9.37(a)(1)].											✓
Protect all survey monuments, witness corners, reference monuments and bearing trees against destruction, obliteration, or damage from operations. Operator shall be responsible for the reestablishment, restoration, or referencing of any monuments, corners, or bearing trees which are destroyed, obliterated, or damaged by such operations [36 CFR §9.41(b)].						✓					+

<b>Geophysical Exploration</b>  <b>Required Operating Stipulations</b>  The applicable legal citation is noted in [parenthesis] after the stipulation.	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
The operator shall take technologically feasible precautions to prevent accidents and fires [36 CFR §9.46].	+	+	+	+	+	+	+	+	+	+	+
Operators shall not injure, alter, destroy, or collect any object, structure, or site of historical, archeological, or cultural value, without written authorization from the NPS [36 CFR §9.47(a); 43 CFR §3].			✓							✓	+
A qualified monitor must be present during appropriate operational phase(s). Once operations have commenced, the operator shall immediately bring to the attention of the superintendent any cultural or scientific resource encountered that might be altered or destroyed by the operation and shall leave such discovery intact until told to proceed by the superintendent. The superintendent will evaluate the discoveries brought to his/her attention, and will determine within ten (10) days what action will be taken with respect to such discoveries [36 CFR §9.47(b)].			✓							✓	+
Use of park roads must be in accordance with procedures outlined in an approved plan of operations [36 CFR 9.50].		✓		+				+	+		✓
Include stop work provisions in the event of a cultural or scientific discovery in operator's the contracts [36 CFR §9.47(b); 36 CFR§800.11].			✓							✓	+
Do not locate staging areas within the 100-year floodplain. If there is no practicable alternative to siting in the floodplain, floodproof structures [EO 11988 Sec 3 (b)].		+		+	✓	+	+	+	+		✓

**Table 3.2. Recommended mitigation measures for geophysical exploration on National Park Service lands**

Geophysical Exploration  Recommended Mitigation Measures	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience Human Health and Safety
Minimize conflicts with visitors by avoiding designated visitor use areas. If operations are needed in or around designated visitor use areas for successful completion of the project, then schedule work during low visitor use times and/or implement strategies to minimize the sights, sounds, and duration of operations in and around designated visitor use areas.										✓	✓
Use minimum number of vehicles, boats, or aircraft necessary to provide efficient and safe access for personnel and equipment.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reduce vehicle speed to minimize dust.	✓			+		+		+			+
Consider spraying designated roads and access routes with fresh water (or other environmentally safe substance) to reduce dust.	✓			✓		✓					
Use properly designed, maintained and operated equipment to reduce emissions such as proper engine fuel mixtures, regularly serviced exhaust systems, and proper engine tuning.	✓									+	
Use designated access routes, designated roads, and natural routes (e.g., waterways) whenever possible during operations and during travel to and from the project area.		✓	+	✓	+	+	+	+	+	+	✓
Locate primary staging areas outside of the park. Confine refueling, lubrication, and maintenance of vehicles and equipment to areas outside the park where feasible.		✓		✓	+	+	+	+	+	+	+
Where feasible, use global positioning systems (GPS) technology to minimize the amount of vegetation removal when surveying source and receiver lines.		+		+	+	✓	+	+	+	+	
Conduct operations during dormant (plant dormancy) seasons.						✓	+				
Cut vegetation by hand, supplementing as necessary with chain saws or other motorized cutting equipment.										✓	✓

<b>Geophysical Exploration</b>  <b>Recommended Mitigation Measures</b>	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
Selectively cut vegetation along source and receiver lines, offsets, and designated access routes as necessary to accommodate safe passage of personnel and equipment.		+		+		✓		+	+		✓
Leave small vegetation in place, (low shrubs, and herbaceous vegetation) consistent with safe passage of personnel and equipment.		+		+	+	✓	+	✓	+		✓
Leave topsoil, rootstock, and seeds on lines and designated access routes to encourage natural revegetation.		✓		+	+	✓	+	+	+		
Clear vegetation in accordance with the park's current vegetation management plans or policies.		+		+	+	✓	+	+	+		✓
Secure flagging, other markers, cables, or other equipment without cutting or slicing vegetation.						✓					✓
Do not permanently mark any tree in the park.											✓
Use means of access other than land vehicles when soils are saturated to minimize compaction, displacement, and rutting of clayey soils.		✓	+	+	+	+	+				
Conduct operations during dry seasons when soils are less susceptible to compaction, displacement and rutting.		✓	✓	+	+	+	+				
Use vehicles with low ground pressure to minimize surface impacts.		✓		+	+	+	+				+
Plan efficient refueling of vehicles and equipment to minimize travel and chances for spills.		✓		✓	+	+	+	+	+		+
Refuel or lubricate equipment over secondary containment such as drip pans, drip basins, or impenetrable polyvinyl covered by absorbent materials.		✓		✓	+	+	+	+	+		+

Geophysical Exploration  Recommended Mitigation Measures	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
Periodically check for leaks under all operating vehicles and equipment; contain and remove contaminated soil for proper disposal.		✓		✓	+	+	+	+	+		+
Replace all cuttings in shotholes / boreholes, including proper tamping of cuttings during shothole plugging. Avoid backfilling shotholes too quickly to avoid bridging. Spread any remaining cuttings on the surface into a thin layer at each hole. Note: Plugging materials may be required for shotholes less than 20 feet deep.		✓									✓
Use existing stream crossings whenever practical.				✓	+	+	+	+	+		+
Minimize stream crossings, if necessary to conduct operations, cross at right angles to the stream.		+		✓	+	+	+	+	+		
Ensure that approaches to stream crossings do not alter natural drainage into the stream. Temporary runoff diversion and/or erosion control structures may be appropriate to minimize erosion and vegetation loss.		+		✓	+	✓	+	+	+		
Whenever practical, cross streams or watercourses where the water is shallow and the streambed or bottom is firm.		+		✓		+	+	✓	✓		
Minimize width of survey lines and designated access routes, particularly at water crossings to minimize input of sediment and vegetation in watercourses.		+		✓	+	+	+	+	+		
Avoid blocking or filling any natural drainage path.				✓	+	+	+	+	+		
When traveling in water, slow vehicle and boat speeds to minimize resource damage.				✓	+	✓	+	✓	✓		+
When using boats, ensure adequate water depth to minimize bank erosion and effects on aquatic life.		✓		+	+	✓	+	✓	✓		
Secure portable fuel tanks to the boat for safety and to prevent loss.				✓		+	+	+	+		✓

<b>Geophysical Exploration</b>  <b>Recommended Mitigation Measures</b>	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
Use loading poles or tamping poles to ensure charges are placed and seated at the proper depth, and shotholes are properly plugged with cuttings and/or other authorized materials. Use plugging materials that meet International Association of Geophysical Contractors (IAGC) standards.	✓		+	✓							✓
Use plugging materials in tubes or casing which will expand appropriately. Recommended tube diameter is 75 percent of shot-hole diameter.	✓			✓							
Plugs should set at least 24 hours before detonation of charges.	✓			✓							
If a flowing shothole occurs (groundwater under artesian conditions), attempt to plug it immediately. If the flow is too great, use expansive plugging material inflatable plug above the aquifer and backfill with expansive plugging material to the surface.	✓			✓							+
Clean vehicles and equipment prior to entering the project area to avoid introducing foreign plant materials.						✓					+
For vehicles, clear the undercarriage of brush to prevent fires when driving over dry areas. Use spark arresters and spark suppression accessories on equipment.					+	✓	+	+	+		✓
Avoid threatened, endangered and sensitive species and their habitats during project design.						✓			✓		
Use US Fish and Wildlife Service "Conservation Guidance for Plant and Animal Candidate Species" to plan and conduct operations that will minimize disturbances to these species.						✓			✓		
Provide field personnel with training in identification and habits of wildlife in the project area.								✓	✓		
If using helicopters, locate helipads as far apart as practical in existing clearings.								✓	✓		✓

<b>Geophysical Exploration</b>  <b>Recommended Mitigation Measures</b>	RESOURCE PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
Consistent with safety, minimize the number of helicopter flyways.								✓	✓		✓
Use long sling lines, consistent with safety, to minimize the effects of down draft from the rotor.								✓	✓		✓
Avoid or bypass wildlife areas marked on the project map and/or in the field to minimize disruption to wildlife, especially in areas of active denning, nesting, spawning, migration, and feeding. Where interaction with wildlife is unavoidable, minimize the sights, sounds, and duration of operations to the maximum extent feasible.								✓	✓		+
Use qualified monitors with expertise in identifying threatened, endangered and sensitive plant and wildlife species and their habitats to accompany field crews, especially land survey crews.						✓		✓	✓		
Report any sighting of threatened, endangered, or sensitive species or paleontological resources to the NPS.			✓			✓			✓		
Inform visitors and area residents and users while planning and conducting an operation. For example, post warning and informational signs, notices in visitor centers, notices in local newspapers and publications, etc.											✓
Adequately sign project area, especially at visible intersections and locations, indicating type of operation and other information and appropriate actions.											✓
Immediately following completion of operations, remove survey stakes, flagging, trash, and other debris or waste from the project area.											✓
Do not burn vegetation, survey stakes, flagging, refuse, or other debris or waste incidental to maintenance or operation.	✓					+					✓
Provide trash bags and trash receptacles for cans, bottles, paper, and other trash generated daily by crews.											✓



<b>Geophysical Exploration</b>  <b>Recommended Mitigation Measures</b>	RESOURCE PROTECTED											
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
Hold daily safety and environmental meetings with crews to reinforce crew and public safety, environmental concerns, and operating procedures.	+	+	+	+	+	+	+	+	+	+	+	✓
Bury and/or secure capwire from undetonated or live charges to reduce risk to human health and safety.												✓
Take appropriate measures to ensure all charges are fired. Disable misfired charges by breaking or cutting the capwire as deep below ground as practical.												✓
When working in dry vegetation, prohibit smoking, or only allow smoking at designated times and locations.						✓						✓
Ensure fire-fighting equipment and personnel are available while operating in dry vegetation. Consider both fire danger and fire danger rating during planning and conduct of operations.	+					✓						✓
Use seed, mulch, or other authorized materials or structures to mitigate the potential for erosion.		✓	✓	✓	+	+	+	+	+		+	

## GEOPHYSICAL OPERATIONS - A PICTORIAL OVERVIEW

Geophysical operations are of relatively short duration and can usually be planned and executed in a way that surface impacts will be temporary. Crews may be in the field for 1 to 4 weeks for a conventional single line survey, and an average 3-dimensional survey may take several months to complete. The intensity of surface impacts will be largely controlled by the methods of access and the equipment used to drill shotholes. The following resource issues are commonly associated with geophysical activities:

- Access along source and receiver lines may require varying levels of vegetation removal.
- Travel along source and receiver lines by overland vehicles may damage soils (compaction or rutting) and vegetation.
- Water quality may be degraded from sedimentation (eroded soils or shothole cuttings)
- Small spills and improperly handled wastes can degrade soils and waters, harm vegetation, fish, and wildlife, air quality, and aesthetics.
- Air quality is degraded from dust and engine emissions.
- The natural sound is interrupted by vehicles and drilling noises.
- Fish and wildlife are injured by human presence, vehicular injury, exposure to contaminants, loss or degradation of habitat, or unauthorized takings.
- Cultural resources may be threatened by direct disturbance, increased human accessibility and fire.
- Large crews that are active in an area may disrupt park visitor uses and experiences.



## STRATEGIES TO MINIMIZE IMPACTS FROM SEISMIC OPERATIONS

- Schedule operations to avoid conflicts with visitors and critical wildlife nesting or mating periods. Seasonal timing of operations may also help minimize impacts on soils, water, and vegetation.
- When siting and accessing seismic lines, use existing roads and trails to the maximum extent feasible.
- Position survey lines and access routes to minimize the number and size of stream crossings.
- Use global positioning devices instead of line of sight surveying to minimize the amount of vegetative cutting. Hand cut vegetation along seismic lines where a line of sight survey is necessary.
- Use vehicles that will not disturb the soils and vegetative root systems. Seasonal timing may help minimize impacts on vegetation. Foot access and hand portable drills may be feasible in areas where large vehicles would cause noticeable damage to soils and vegetation.
- Use foot access for receiver lines if vehicular access will require active reclamation steps.
- Consider the use of mini-shothole patterns so that smaller, less damaging equipment may be used to drill the shotholes.
- Minimize the number of passes along a line that uses vehicular access. Often single passes are achievable with careful planning.
- In areas where cultural resources are expected, have a qualified archeologist accompany each survey crew to identify and avoid cultural sites.
- Offset shotpoints from structures, water bodies, and sensitive resource areas.



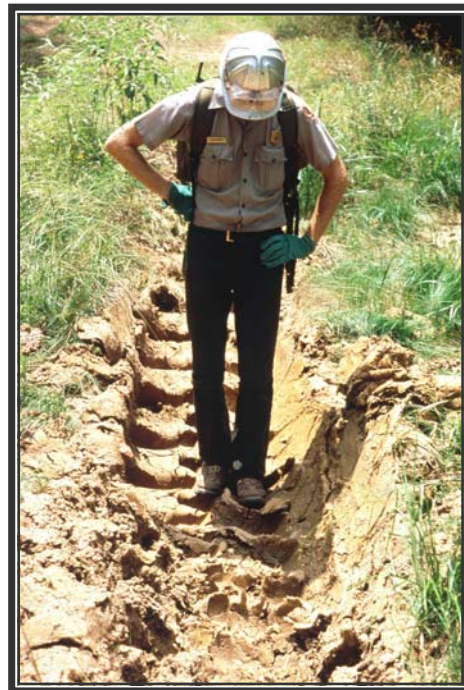
A recording station uses telemetry to transmit geophone data to the recording truck.



**PROPER SELECTION OF SHOT HOLE DRILLING EQUIPMENT**

**Proper selection of shothole drilling equipment is the key to reducing impacts on park resources.**

Shotholes previously drilled to 100-foot depths have given way to mini-shothole patterns. The mini-shothole patterns may consist of 5 to 10 shotholes drilled to depths of 3 to 5 feet. Heavy articulated buggies that are used to drill deep shotholes can destroy small trees, create wide pathways, and leave sizeable ruts. In Big Thicket National Preserve this method of access has resulted in less damage to park resources.

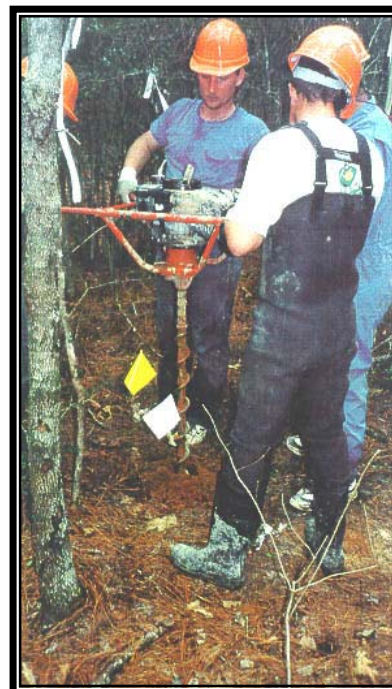






In older surveys, trails were cut to provide access for the large drilling equipment shown at the left.

Use of the hand portable drills to drill the mini-hole patterns minimizes impacts on soil and vegetation.



When the flagging is removed from this mini-hole seismic line (photo taken down the line), it will be difficult to identify the line's location.

## USE OF EXISTING TRAILS AND ONE PASS STRATEGIES

In Big Cypress National Preserve, some areas have a high concentration of existing trails from recreational ATV and swamp buggy use. An operator successfully designed a 3D seismic survey with source lines maximizing the use of existing trails in the survey area. A muskeg carrier fitted with a water tank and drill worked well for drilling shotholes along the existing trails. Surface impacts were minimal and generally required no active reclamation measures.



Proper planning along a seismic line that requires vehicular access is the key to limiting the number of trips the vehicle makes up and down the line. One-pass operations are feasible in many instances. Helicopters have also been used successfully move personnel, equipment, and supplies to minimize the number of vehicle passes.



## USE OF HELICOPTERS

Helicopter transport of drilling equipment precludes the need for new trails in sensitive and difficult to reclaim areas. Surface impacts are limited to the immediate area around each shothole.



In Big Cypress National Preserve the operator staged helicopters from an existing disturbed area, in this case an active production site.



For this job, three heli-portable drilling units kept a single helicopter busy and minimized the time the crew had to wait for equipment.



Four sling loads were used to move the air drilling unit, compressor, power unit, and toolbox from one shotpoint to the next.

**USE OF LOW IMPACT VEHICLES**

The wide tracks on this shothole drilling rig distribute the vehicles weight over a large area giving it a very low pound per square inch displacement. Aluminum construction of many typically steel components contributes to the very low displacement of this tracked marsh buggy.

A person might leave footprints two inches deep on this sensitive mudflat environment, but the aluminum buggy did not create any ruts over 1/2 inch deep. Reclamation was restricted to just a few areas.



Conventional vehicles with tires created rutting in this mudflat area over 15 years ago. Restoration to pre-disturbance conditions would be difficult to accomplish in this type of environment.



**Avoid damage to the soil and root structure and eliminate costly reclamation projects.**

Use of vehicles with large “terra-tires” is another method used to distribute a vehicle’s weight, like on this water truck. ATV’s are designed with this principle, and may be appropriate for transporting personnel and equipment along survey lines.



Though the exposed blades of grass are damaged by the vehicle, the root systems and soil structure are not.



Soon after the survey is complete, the grass is growing again without the need for the company to perform any type of active reclamation.

## **CHAPTER 4**

### **DRILLING & PRODUCTION OPERATIONS**

This chapter includes the following information:

- NPS Permitting process checklist for drilling and production operations,
- Plan of operations information requirements for drilling and production,
- Required operating stipulations,
- Recommended mitigation measures, and
- Pictorial overview of drilling and production operations.

#### **NPS PERMITTING PROCESS CHECKLIST FOR DRILLING AND PRODUCTION OPERATIONS**

The following checklist outlines the permitting process for drilling and production operations in units of the NPS. The items on the checklist are described throughout this handbook. This checklist can be used by an oil and gas operator to make sure that all of the required steps have been completed to prepare and have a plan of operations approved by the National Park Service.

- ☐ Operator contacts park regarding interest in conducting oil and gas operations (for more information, see CH 2).
- ☐ Operator provides written documentation demonstrating right to conduct operations in the park (for more information, see CH 2).
- ☐ Operator meets with park staff to scope proposed project (for more information, see CH 2).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Operator requests temporary access permit to gather information needed to complete the plan of operations (for more information, see CH 2).
- ☐ Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area (for more information, see CH 2).
- ☐ Operator prepares the plan of operations and submits the draft plan to the National Park Service (for more information, see CH 4).

The Plan of Operations for drilling and production operations must include the following sections:

- ☐ I. Lease and Ownership Information
- ☐ II. Maps and Plats
- ☐ III. Description of Well Geology
- ☐ IV. Timeline for Operations
- ☐ V. Description of Operations
- ☐ VI. Spill Control Plan
- ☐ VII. Reclamation Plan
- ☐ VIII. Affidavits and Statements
- ☐ IX. Other Applicable Permits

## CHAPTER 4 – DRILLING AND PRODUCTION OPERATIONS

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- ☐ X. Background Environmental Information
- ☐ XI. Relationship to Park Planning Documents
- ☐ NPS performs a completeness and technical review of the plan of operations (for more information, see CH 2).
- ☐ Operator revises plan of operations, if necessary (for more information, see CH 2).
- ☐ Park staff prepares NEPA document (or adopts operator's or consultant prepared NEPA document), incorporates other environmental compliance, and initiates mandated consultations with other agencies (for more information, see CH 2).
- ☐ Park completes public review process, finalizes decision documents, and notifies the operator that the plan has been approved, conditionally approved, or rejected.
- ☐ Operator agrees to conditions of approval (if any), submits applicable state and federal permits, and files performance bond with the NPS (for more information, see CH 10).

## PLAN OF OPERATIONS INFORMATION REQUIREMENTS

This list of requirements is presented to assist National Park Service personnel and nonfederal oil and gas operators in defining specific information that should be included in a proposed plan of operations for drilling and production operations. These requirements are based on the regulatory provisions under 36 CFR §9.36. These information requirements can also be used by the NPS to determine if a proposed plan of operations is complete and sufficiently detailed to merit "official acceptance" for review and analysis in accordance with the regulations at 36 CFR §9.36(c).

A plan of operations may not need to address all of the information requirements presented in this list. The operator and NPS staff will narrow the list during project scoping. In some instances, the NPS may require additional information not specifically listed here so that it may effectively analyze the proposed operation. Such additional information also would be identified during project scoping.

The operator will submit the plan of operations, tender the performance bond, and be the responsible party for compliance with the plan of operations.

### I. LEASE AND OWNERSHIP INFORMATION

The purpose of this section is to identify the "operator" as defined under the NPS regulations, to document the operator's right to conduct oil and gas activities under the rights associated with the mineral estate, and to identify primary company contacts for planning, field operations, and emergencies.

- A. Name(s) and address(es) of:
  - 1. Surface owner (if other than the NPS), and
  - 2. Lessor (mineral owner).
- B. Name, address, and telephone of:
  - 1. Operator,
  - 2. Lessee (if different than operator),
  - 3. Person accountable for operations,
  - 4. Field representative, and
  - 5. Contact person in case of spill, emergency, etc.
- C. Copy of the instrument(s) demonstrating the operator's right to operate. Examples include:
  - 1. Deed or affidavit of ownership,
  - 2. Lease document / Farmout Agreement,
  - 3. Designation of operator, or
  - 4. Designation of agent.

### II. MAPS AND PLATS

The purpose of this section is to graphically show the operator's mineral tract(s) and the area of operations in relation to the park. The area of operations includes proposed new surface

## CHAPTER 4 – DRILLING AND PRODUCTION OPERATIONS

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disturbance associated with the operations such as the wellpad, access road, and any other planned surface use. The scaled location plats serve two purposes. First, they clearly and accurately define the area that the operator has available for conducting well operations. Secondly, the plats identify the area that the operator is responsible for reclaiming.

- A. **Tract/Lease Boundaries Map.** Provide map(s) showing the boundary of the mineral tract(s) or leases used to demonstrate the right to operate in Section I., Paragraph C. The map(s) should be on the appropriate 1:24,000 scale USGS quadrangle(s) (7.5 minute series) and identify the following:
1. NPS park unit boundary,
  2. Each mineral tract/lease cross-referenced to the “right to operate” information provided in Section I. C.
- B. **Operations Location Maps.** Submit scaled map(s) showing the location of proposed operations. USGS topographic quadrangle maps should be used as base map(s). Show the following (as applicable):
1. Existing access road(s),
  2. Proposed access route(s) for new road construction,
  3. Proposed helicopter landing zones,
  4. Proposed oil and gas well(s) and/or facilities,
  5. All potable water; produced water disposal; producing, shut-in, exploratory, and abandoned oil and gas wells within a one-mile radius of the proposed operation site,
  6. Proposed new flowlines and pipelines,
  7. Location of all existing flowlines and pipelines in the area of proposed operations, and
  8. Sources of any fill or borrow materials necessary for operations.
- C. **Operations Plats.** Submit large scaled plat(s) showing the dimensions and equipment layout of the proposed operations area. Show the following (as applicable):
1. Access road dimensions (including cross sections if cut or fill is required),
  2. Wellpad dimensions (include cross sections if cut or fill is required),
  3. All excavations for ditches, sumps, etc. on and around wellpad (show cross sections),
  4. Drill rig and associated drilling equipment layout (e.g., compressors, drill pipe, mud tanks, fuel storage, drilling mud storage, etc.):
    - a. all areas to be protected with liners, including liner type and thickness,
    - b. temporary living quarters (i.e., trailers),
    - c. location and type of sanitary facilities, and
    - d. berm, ring levee, or stormwater containment construction.
  5. Production site layout (wellhead and all associated production equipment):
    - a. wellhead and all associated production equipment, including tanks, flowlines, meters, heater treaters, separators, etc.,
    - b. berm, ring levee, or stormwater containment construction,
    - c. flowline and pipeline control valves, pressure regulators, pressure and volume monitors and alarms, and cathodic protection (rectifiers) stations,
    - d. electrical powerlines,
    - e. produced water disposal well, all equipment, and flowline,
    - f. enhanced recovery systems and equipment, and
    - g. all other equipment and/or facilities necessary for operations.

- D. **Topographic Profiles.** Submit the following topographic survey plats as determined by a registered land surveyor or civil engineer (as applicable):
1. Scaled topographic plat of the proposed wellpad area (contour interval to be determined by the Superintendent), and
  2. Linear topographic profile of the proposed new access road and pipeline route.

### **III. DESCRIPTION OF WELL GEOLOGY**

- A. Provide the following geologic information for the area of operations:
1. Total depth of the oil and gas well(s),
  2. Depth(s) of anticipated and/or current producing zones and name of formation(s),
  3. Depth(s) at which freshwater zones must be protected,
  4. Depth(s) of all known brine zones, and other minerals such as coal or oil shale,
  5. Depth(s) of all zones with abnormally high or low pressure, or other geologic hazards, and
  6. Brief description of any drilling or production practices that are proposed for the operation that account for geologic conditions, such as heavy muds for high pressure zones, oil or saltwater muds to drill expanding clays or shales, unusual casing or cementing programs, hydrogen sulfide safety plans, etc.

### **IV. TIMELINE FOR OPERATIONS**

- A. Provide an estimated timeline for the proposed operation, including the following information (as applicable):
1. Estimated date to begin site preparation and construction,
  2. Estimated date to spud the well or to begin actual operation,
  3. Estimated time to drill to total depth,
  4. Estimated time to test and complete well, construct pipeline, etc.,
  5. Anticipated longevity of operations,
  6. Estimated date when reclamation will begin, and
  7. Estimated time to complete reclamation.

### **V. DESCRIPTION OF OPERATIONS**

The description of operations should provide enough detail about the proposed methods, sequence, and equipment to allow the NPS to assess the proposal's affects on the environment. Thus the amount of information in this section will vary depending both on the planned activities and the environment where they will be conducted.

Provide a description of the proposed methods, sequence, and equipment for each component of the operation(s) (e.g. road and pad construction, drilling, production, flowlines, etc.). Also describe the specific actions that the operator will implement to minimize or eliminate adverse

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impacts on park resources and visitor related values. Table 4.2 includes many mitigation measures that could be implemented to protect these resources and values.

NOTE: Operators cannot use sources of water inside the park without written permission of the regional director. The regional director can only approve a plan of operations that uses a source of water from inside the park if one of two conditions exist: 1). the operator owns a superior water right, or 2). use of the water does not damage park resources (36 CFR §9.35).

### A. New Access Road and Wellsite Construction:

1. Topsoil removal and storage for later use in reclamation,
2. Excavations (cut and fill) for road and well pad,
3. Type and quantity of material for road and pad base (gravel, board mat, etc.),
4. Number, type and placement of culverts or bridges required to ensure surface water flow,
5. Pad slope to cellar or other point to collect spilled contaminating substances,
6. Well cellar, mouse hole, rat hole construction,
7. Type and thickness of liner to be placed below drilling rig and all equipment with high probability for release of a contaminating substance (e.g., hydraulic fluid, crankcase oil etc.), and
8. Diking around wellpad to prevent release of contaminating substances into surrounding lands or waters.

### B. Drilling Operations.

1. Mobilization of drilling equipment and support facilities,
2. Considerations for site security and public safety (e.g. traffic control, signing, road gate, security guard, etc.),
3. Water requirements, amount, source, transportation, storage, etc.,
4. Considerations for stormwater management,
5. Well design:
  - a. total depth and directional program,
  - b. hole size for each casing string,
  - c. setting depths of each string, and
  - d. casing size, grade, and weight of each string.
6. Blowout preventer(s) and other pressure control equipment for each well segment including:
  - a. minimum specifications and pressure ratings,
  - b. schematic diagram of blowout preventers and other pressure control equipment, and
  - c. testing procedures and frequencies.
7. Cementing program, including:
  - a. types and amounts of cement,
  - b. cement additives, and
  - c. cementing procedures.
8. Mud system:
  - a. mud types, properties, weights, and additives, for each well segment, and
  - b. mud handling and containment system (e.g., number, type and size of mixing tanks and reserve fluid tanks; separation, storage and fate of cuttings; etc.).

Note: The NPS will require a closed loop “zero discharge system” to protect park resources.

9. Well evaluation program:
    - a. well logs,
    - b. core Intervals, and
    - c. drill stem test including handling of produced fluids.
  10. Dry hole plugging procedures (Note: Plugging methods must comply with NPS plugging procedures covered in Chapter 7 of this handbook):
    - a. types of plugs and setting depths,
    - b. type and amount of cement, and
    - c. type of abandoned hole marker.
  11. Well completion program:
    - a. completion type (openhole, perforated, slotted liner, etc), and
    - b. completion procedure outline including considerations for well control.
- C. **Production Operations.** (Note: Production operations may be described "generically" if equipment and layout cannot be predicted; however, if the information is not supplied in the initial plan, a supplemental plan of operations may be required prior to the conduct of production operations.)
1. Considerations for site security and public safety (e.g. fencing, signing, etc.),
  2. Considerations for stormwater management,
  3. Artificial lift equipment,
  3. Pressure and flow control equipment:
    - a. tree configuration, specifications, and pressure ratings, and
    - b. downhole and/or flowline pressure or flow control equipment including testing procedures and frequencies.
  4. Treating and separating process and equipment,
  5. Produced water storage and disposal,
  6. Tank battery (number, type, size, volume, etc.) and berm or "firewall" construction and maintenance (Note: Firewall dimensions must contain 1.5 times the volume of the largest tank, and an impermeable liner must be installed under the tank battery to protect soils and groundwater.),
  7. Removal/disposal of impounded precipitation within the tank firewall, if applicable,
  8. Flowlines and pipelines:
    - a. size, type, length, depth, etc.,
    - b. inspection and testing procedures and frequency,
    - c. maximum and mean flow rate of product,
    - d. maximum and mean operating pressure,
    - e. cathodic protection methods,
    - f. pig launching/retrieving station(s), and
    - g. vegetation management along line routes.
  9. Metering points, including LACT units, orifice meters, and turbine meters,
  10. Sales point (if on lease),
  11. Tanker truck pick-up points (if on lease),
  12. Gas compression (if applicable),
  13. Enhanced oil recovery facilities including waterflooding, fireflooding, polymer flooding, and any other secondary or tertiary recovery facilities (if applicable),



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14. General maintenance of access road and production site including vegetation management,
  15. Anticipated recompletion, stimulation, workover, and plugging activities:
    - a. considerations for preventing oil, brine, chemicals, and other materials from reaching the ground (e.g. use of plastic liners beneath the workover rig, pipe racks, and other equipment as necessary; collection of all fluids and solids returned to the surface from the wellbore in metal tanks; waste disposal outside park, etc.), and
    - b. park notification prior to conducting such operations.
  16. Well plugging procedures (Note: Plugging methods must comply with NPS plugging procedures covered in Chapter 7 of this handbook.):
    - a. types of plugs and setting depths,
    - b. casing removal, perforation depths, and cement placement technique,
    - c. type and amount of cement required, and
    - d. type of abandoned hole marker.
- D. **Compliance with Operating Standards.** Description of how the operator will comply with the following operating standards at 36 CFR §9.41-9.46. Requests for variances should be accompanied with supporting information.
1. Surface operations shall not be conducted within 500 feet of a watercourse, high pool shoreline, mean high tideline, or any structure or facility (excluding roads) used for unit interpretation or administration, unless specifically authorized,
  2. Protection of all survey monuments, witness corners, reference monuments and bearing trees,
  3. Shut-in of well when drilling or production operations are suspended for 24 hours or more, but less than 30 days,
  4. Shut-in of well when production operations are suspended for 30 days or more,
  5. Posting of a sign showing operator name and operation identification number,
  6. Fencing around all wells, storage tanks, and high-pressure equipment as specified by the park superintendent,
  7. Posting of warning signs acceptable to the superintendent if operations are located in or near visitor use areas,
  8. Preventing accumulation of oil and other materials deemed to be fire and environmental hazards, and
  9. Prompt removal of all equipment and materials not in use.

## VI. SPILL CONTROL PLAN

The requirements for a Contaminating or Toxic Substance Spill Control Plan (Spill Control Plan) are not specifically found in the 9B regulations. The NPS has combined informational requirements and operating standards from the 9B regulations to develop a format for a Spill Control Plan. See *Chapter 11 – Spill Control Plan* for organization and content requirements for a Spill Control Plan.

## VII. RECLAMATION PLAN

The reclamation plan will describe the actions needed to meet the general regulatory reclamation standards<sup>1</sup> as well as site-specific reclamation goals. The procedures of the reclamation plan will be based on the disturbance anticipated from the proposed operations (as described in Section V. A-C of this section), and reclamation expectations of the NPS as identified during project scoping. The operator should organize the reclamation plan by the following sections.

### A. Reclamation Goals.

1. Summarize the site-specific reclamation goals developed during project scoping. Site-specific goals might include a desired percent of vegetative ground cover, the type of plants, soil stabilization, surface drainage characteristics, etc.
2. State the timeframes for reclamation. Describe when reclamation activities would begin, how long reclamation activities would last, and a schedule for monitoring the results of the reclamation.

### B. Reclamation Procedures.

The regulations provide seven steps that need to be completed at a minimum to satisfy reclamation standards for operations on federal surface.<sup>2</sup> The following steps may be used as an outline for developing the plan's reclamation procedures. The operator can describe the methods and equipment that will be used to accomplish each of the seven steps.

1. Plug and abandon all nonproductive wells (including water supply wells, cathodic protection wells, etc) and fill in any other excavations (ratholes, mouseholes, drainage ditches, sumps, etc.).
2. Remove all above ground structures, equipment, roads (and pad material) no longer needed for future operations.
3. Remove all other man-made debris that resulted from operations.
4. Remove or neutralize contaminating substances. For this step, the operator is responsible for removing soils or any other material that becomes contaminated. If there is reason to suspect soils or groundwater have been contaminated, the operator will likely need to collect and test samples to verify that contaminating substances have been removed or neutralized. Neutralization or removal of contamination means that contaminant concentrations will be reduced in soils (or groundwater) to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands and waters, provides for the safe movement of native wildlife, and which does not jeopardize visitor health and safety.
5. Restore the natural contour of the land.
6. Place and prepare the natural soils needed for vegetation.
7. Re-establish native vegetative communities. In addition to the revegetation procedure, this section should include the steps for monitoring progress of the reclamation effort.

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<sup>1</sup> See §9.39, Reclamation Requirements, and Chapter 7, Surface Reclamation of this Handbook, pages 7-22 through 7-23.

<sup>2</sup> For operations on private surface estate, see page 7-18 of this Handbook

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**Reclamation Cost Estimate.** The cost of reclamation in part determines the amount of the performance bond.<sup>3</sup> It also provides an estimate of costs to complete the reclamation procedures in Item B above. At a minimum, there needs to be enough detail to support subtotals for each of the following subcategories:

1. Well Plugging (Item B. 1 above),
2. Removal of structures, equipment, roads, pads, debris, etc. (Items B. 2 and 3 above),
3. Removal or neutralization of contaminating substances (Item B. 4 above) including soil and water sampling and testing, soil and water remediation, disposal of contaminated soils or water, etc.,
4. Site and soil preparation (Items B. 5 and 6 above), and
5. Vegetation and monitoring (Item B. 7 above).

The NPS will verify and use the cost estimate to set the reclamation portion of the performance bond. The subtotals may be used to determine amounts by which to reduce the operator's performance bond if reclamation is to be performed in phases.

If the operator chooses not to provide the cost estimates for reclamation, the performance bond may be set at the maximum amount allowed by regulation<sup>4</sup>, which is \$200,000 per operator per park unit. If the operator already holds a \$200,000 bond for other operations in the same park, it is unnecessary for the operator to provide the cost estimate information required by this section.

### VIII. AFFIDAVITS AND STATEMENTS

- A. Include an "Affidavit of Compliance" signed by an authorized official of the company as required by regulations at 36 CFR §9.36(a)(15). The affidavit should state that the proposed operations are in compliance with all applicable federal, state and local laws and regulations.
- B. Include a statement that the operator is fully accountable for all contractor and subcontractor compliance with the requirements of the approved plan of operations. This statement serves to clarify the operator's responsibility under the regulations at 36 CFR §9.41(g).
- C. Include a statement that the superintendent, or his/her representative, shall have reasonable access to the site as is necessary to monitor and ensure compliance with the approved plan of operations. This statement serves to meet the regulatory requirement at 36 CFR §9.37(f).

### IX. OTHER APPLICABLE PERMITS

- A. Include a copy of, or application for, all other permits required by other federal, state or local agencies.

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<sup>3</sup> See §9.48(d)(1) and page 10-3 of this Handbook.

<sup>4</sup> See §9.48(d)(3) and page 10-3 of this Handbook.

## X. BACKGROUND ENVIRONMENTAL INFORMATION

The purpose of this section is to; present information on existing natural and cultural resources in the project area, assess the environmental impacts of the proposed operation, and discuss any technologically feasible alternatives for the proposed operation. Information that should be presented in this section will be determined during project scoping with park staff. The park may have some of the required natural and cultural resource information for the operator's use in preparing this section of the plan.

### A. Description of natural resources in the proposed operation area should include the following information:

1. Soil type(s) and engineering properties such as permeability, porosity, erosion potential, etc.,
2. Baseline soil chemical analysis on the proposed wellpad area, including the following parameters (Note: parameters can be adjusted based on proposed use of chemicals and substances):
 

<ol style="list-style-type: none"> <li>a. pH value,</li> <li>b. arsenic,</li> <li>c. total barium,</li> <li>d. cadmium,</li> <li>e. chromium,</li> <li>f. lead,</li> <li>g. mercury,</li> </ol>	<ol style="list-style-type: none"> <li>h. selenium,</li> <li>i. silver,</li> <li>j. zinc,</li> <li>k. total petroleum hydrocarbon,</li> <li>l. electrical conductivity,</li> <li>m. sodium absorption ratio, and</li> <li>n. exchangeable sodium percentage,</li> </ol>
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3. Paleontological resources known to occur or likely to occur in the project area (if applicable). The discussion should include the results of the paleontological survey of the project area performed by a qualified paleontologist approved by the NPS,
4. Hydrology and water quality, including the following:
  - a. drainage pattern of the project area,
  - b. proximity to surface water (intermittent or permanent watercourses, streams, ponds, lakes, springs, etc.),
  - c. depth to groundwater,
  - d. proximity to the base floodplain and 100 year floodplain, and
  - e. water quality in nearby surface water and/or shallow groundwater,
5. Vegetation species composition in access road and wellpad area, including predominant herbaceous, shrub, midstory, and overstory species. (Note: This information is necessary to properly design a reclamation plan),
6. General wildlife species composition in the proposed operation area,
7. Federal or state threatened / endangered plant or wildlife species that inhabit or frequent the proposed operation area,
8. Air quality in the proposed operation area, including information on pollutant levels and existing point sources for pollutants in the area, and
9. General description of baseline noise levels in the proposed operation area, including local sources contributing to increased noise levels.

### B. Description of cultural resources in the proposed operation area should include the following information:

1. Background information on archeological and historic resources documented in the general area, including review of the National Register of Historic Places, and

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2. Results of cultural resources survey of project area performed by a professional archeologist approved by the NPS.
- C. Identification and proximity of park visitor use areas (e.g., trails, campgrounds, public roads, picnic areas, overlooks etc.) near the proposed operation area.
- D. Description of the anticipated direct, indirect, and cumulative effects of the proposed operation on the park natural and cultural resources, and socioeconomic environments listed above. (This is the operator's opportunity to support their conclusions on the environmental effects of their operations.)
- E. Description of all reasonable technologically feasible alternative methods of operation and associated environmental impacts.

### **XI. RELATIONSHIP TO PARK PLANNING DOCUMENTS**

- A. The plan of operations must discuss how the proposed operation relates to park planning documents (General Management Plan, Oil and Gas Management Plan, etc.) in terms of considering and integrating operational measures described in the plan(s) to achieve park management objectives. The park oil and gas contact will furnish a copy of all applicable park planning documents.

## REQUIRED OPERATING STIPULATIONS AND RECOMMENDED MITIGATION MEASURES FOR DRILLING AND PRODUCTION OPERATIONS

The tables in the following section describe required operating stipulations (Table 4.1) and recommended mitigation measures (Table 4.2) for drilling and production operations on NPS lands. Both tables identify whether the stipulation or mitigation measures is applicable to the construction of access roads, drilling or production operations, or the construction and maintenance of flowlines and pipelines. The primary resource(s) that would be protected by the operating stipulations and mitigation measures listed in the tables are denoted by a ✓ symbol. Other resources that would benefit from the protective measures are marked with a + symbol.

Table 4.1 focuses on the National Park Service's Nonfederal Oil and Gas regulations at 36 CFR Part 9 Subpart B but also includes applicable operating stipulations required under other federal laws and regulations. To ensure compliance with all applicable legal and policy mandates, it is the operator's responsibility to consult with the appropriate federal, state, and local agencies prior to conducting operations on NPS lands.

**Table 4.1. Required operating stipulations for drilling and production operations on NPS lands**

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	<b>Drilling and Production Operations</b>  <b>Required Operating Stipulations</b>	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
	✓			The applicable legal citation is noted in [parenthesis] after the stipulation. Use closed-loop and containerized drilling mud system to minimize drilling mud volumes, drilling fluid wastes, and site disturbance. Earthen pits will not be permitted for drilling and production operations on NPS lands [36 CFR § 9.37(a)(1)].			✓		✓	+	+	+	+	+		+	+
✓	✓	✓	✓	Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of any natural or man-made impoundments...unless specifically authorized by an approved plan of operations. If necessary, the operator must specifically request exemptions from this standard in the plan of operations and demonstrate that the exemptions are necessary for acceptable data quality, can be conducted with insignificant affects on park waters or manmade infrastructure, and result in overall resource impact reduction [36 CFR § 9.41(a)].			+		✓	✓	+	✓	+	+		+	

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations  Required Operating Stipulations	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
	✓	✓		The applicable legal citation is noted in [parenthesis] after the stipulation.													
	✓	✓		Whenever drilling or production operations are suspended for 24 hours, but less than 30 days, the wells shall be shut-in by closing wellhead valves or blowout prevention equipment. When production operations are suspended for 30 days or more, a suitable plug or other fittings acceptable to the park superintendent shall be used to close the well [36 CFR §9.41(c)].	+	+		+	+	+	+	+	+	+		✓	✓
	✓	✓		Place signs at every operation or well in a conspicuous place and include the name of the operator or owner, well number, lease number, location, and phone number. Take all necessary means and precautions to preserve these markings [36 CFR § 9.41(d)].												✓	✓
		✓		Secure production operation sites with acceptable fencing around wells, storage tanks, all high-pressure equipment, and storage tanks, unless otherwise authorized by the park superintendent [36 CFR § 9.41(e)].									+	+		✓	✓
	✓	✓	✓	Operators shall remove from the park or store in an orderly manner, all scrap materials or other materials that are not in use or other materials deemed to be fire hazards from the vicinity of well locations and lease tanks [36 CFR § 9.41(f)].	+	+	+	+	+	+	+	+	+	+	+	✓	✓
	✓	✓		Operators must use procedures and equipment of sufficient pressure rating to keep the well under control at all times. Surface casing must be cemented to surface unless otherwise permitted. All other casing strings must be securely cemented in place to ensure control of the well [36 CFR § 9.43].	+	+	+	+	+	+	+	+	+	+	+	+	✓
	✓	✓		Oilfield brine, and all other waste and contaminating substances must be kept in the smallest practicable area, must be confined to prevent escape as a result of percolation, rain, high water or other causes, and such wastes must be stored and disposed of or removed from the area as quickly as practicable in such a manner as to prevent contamination, pollution, damage or injury to the lands, water (surface and subsurface), facilities, cultural resources, wildlife, and vegetation of or visitors of the unit [36 CFR § 9.45].		✓	✓	✓	+	✓	+	✓	✓	✓	+	✓	
	✓	✓		The operator shall take technologically feasible precautions to prevent accidents and fires [36 CFR § 9.46].	+	+	+	+	+	+	+	+	+	+	+	+	✓
✓	✓	✓	✓	Operators shall not injure, alter, destroy, or collect any object, structure, or site of historical, archeological, or cultural value, without written authorization from the NPS [36 CFR §9.47(a); 43 CFR §3].											✓	+	
✓	✓		✓	Include stop work provisions in operator's contracts in the event of a cultural or scientific resource discovery [36 CFR § 9.47(b); 36 CFR § 800.11].			✓				+				✓	+	

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations  Required Operating Stipulations  The applicable legal citation is noted in [parenthesis] after the stipulation.	RESOURCES PROTECTED											
					Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
✓	✓	✓	✓	Use of park roads must be in accordance with procedures outlined in an approved plan of operations [36 CFR § 9.50].		✓		+				+	+		✓	+
✓	✓	✓	✓	Dispose of stormwater in accordance with federal and state laws [33 U.S.C. §§ 1251 <i>et seq.</i> , Section 402 Permits].		+		✓	+	+	+	+	+		+	✓
	✓	✓		If required by the park superintendent, provide laboratory analyses of soils, surface water, groundwater, and sediment before and after well drilling or production operations (or change of ownership or lease rights) [refer to NPS “Guideline for the Detection and Quantification of Contamination at Oil and Gas Operations” found in Appendix D of this document].		✓		✓		+	+	+	+		+	
	✓	✓		Cover or place netting on storage tanks to minimize the likelihood of accidental deaths of migratory birds [Migratory Bird Treaty Act -16 U.S.C. §§ 703-712; Executive Order 13186].								✓	✓		+	
✓	✓	✓	✓	Schedule work during times least likely to affect T & E species [Endangered Species Act, 16 U.S.C. §§ 1531-1544, 50 CFR Parts 402 & 450].						✓	+	+	✓			
✓		✓	✓	Do not locate gathering lines, flowlines, and access roads within the 100-year floodplain unless there is no practicable alternative. Where such operations must be located within the 100-year floodplain, appropriate mitigation measures must be taken to flood-proof or elevate the road, gathering line, or flowline to minimize structural and environmental risks associated with flooding. These activities could be permitted within the 500-year floodplain if appropriate mitigation measures are taken to flood-proof or elevate the site to minimize environmental risks associated with flooding [Executive Order 11990 Sec 3 (b)].		+		+	✓	+	+	+	+			✓
	✓	✓		Do not locate drilling operations, wellheads, oil and gas processing and storage facilities and equipment, including heater treaters, separators, oil and produced water storage tanks, etc. within the 500-year floodplain (critical action floodplain) unless there is no practicable alternative. Where such operations must be located within the 500-year floodplain, appropriate mitigation measures must be taken to flood-proof or elevate the site to minimize structural and environmental risks associated with flooding [Executive Order 11990 ,Sec 3 (b)].		+		+	✓	+	+	+	+			✓
		✓		Firewalls constructed around storage tanks or tank batteries must be of sufficient size to contain at least 1.5 times the storage capacity of the largest enclosed tank. Firewalls must be properly constructed and maintained [40 CFR § 112.7(e)(5)(B)].		+		+	+	+	+	+	+		+	✓



**Table 4.2. Recommended mitigation measures for drilling and production operations on NPS lands**

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations  Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
✓	✓	✓	✓	Locate drilling operations and production facilities outside of the park whenever practicable.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	Confine all activities, including personal and company vehicles, to right-of-way, road, disturbed area, or other designated areas.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	Avoid or bypass wildlife areas, especially in areas of active denning, nesting, spawning, migration, or feeding. Where interaction with wildlife is unavoidable, minimize the sights, sounds and duration of operations to the maximum extent feasible.									✓	✓			
✓	✓	✓	✓	Before moving equipment on or off location, make sure machinery is plugged, drained, or otherwise secured to keep fluids from leaking during transport.			✓		✓	+	+	+	+	+			
✓	✓	✓	✓	Reduce vehicle speeds to reduce chances of injuring wildlife.									✓	✓		+	
✓	✓	✓	✓	Use seed, mulch, or other authorized materials or structures to mitigate the potential for erosion (use certified weed-free mulch, native seed or park-approved sterile cover crops that are not sources of undesirable non-native plant species).			✓		✓	+	✓	+	+	+		+	
✓	✓	✓	✓	Use mechanical or physical methods to control vegetation along roadways, adjacent to wellpads, at wellheads, valves, meter stations, production facilities, etc.													✓
✓	✓	✓	✓	Use NPS-approved herbicides to control vegetation where no other alternative method of control, including mechanical or physical methods exists.			+		+	+	+	+	+	+		+	✓
✓	✓	✓	✓	Ensure that individuals applying herbicides are certified by the state for herbicide applications.			+		+	+	+	+	+	+		+	✓
✓	✓	✓	✓	Apply pesticides when visitors are not in area and post signs in areas that have been treated until they are dry.												✓	✓

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations  Recommended Mitigation Measures	RESOURCES PROTECTED												
						Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
✓	✓	✓	✓	Apply pesticides according to label directions, when applying outdoors (especially herbicides); do not apply during windy conditions.	+	+			+	+	+	+	+	+		✓	✓
✓	✓	✓	✓	As authorized under an approved plan of operations, annually report the types and amounts of pesticide use to the park superintendent by January 30.													✓
✓	✓	✓	✓	Do not burn vegetation, refuse, or other debris or wastes incidental to maintenance of operation.	✓						+		+			+	✓
✓				Use the minimum road design standard sufficient to carry anticipated traffic and loads with reasonable safety and with minimum environmental impact.		✓		+	+	+	+	+	+	+			✓
✓				Do not construct access roads on steep slopes. If there is no alternate access to wellpad, construct road with switchbacks to minimize steepness of roadway.		✓	+	+	+	+							+
✓				Use gravel or other appropriate road surfacing materials on access roads to minimize erosion.		✓	+	+	+	+						✓	+
✓				When possible, construct roads in drainage divides.		✓		+								✓	
✓				Use alternative construction methods, such as board roads, for temporary access to well locations.		✓	+	+	+	+	+	+	+		+		
✓				Avoid constructing access roads in areas with clayey soils. If not possible, roads should trend perpendicular to contours when crossing clayey soils. In permeable soils, plan roads to run parallel to contours and design to enhance recharge.		✓		+	+	+	+						
✓				Crown or outslope the road surface to dissipate surface runoff and minimize erosion of the roadbed.		✓	+	+	+	+	+	+	+	+	+		
✓				Install drainage structures (ditches, culverts, cross drains, wing ditches, etc.) and bridges to maintain hydrology of the site and adjoining wetlands, and to protect aquatic life and allow for their safe passage through the site.		+		✓	+	+	✓	✓	+				✓

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
✓				Sign, gate, and lock oil and gas access roads that are used solely by the operator.												+	✓
✓				Remove and reclaim all oil and gas access roads that are not necessary for the conduct of operations.		✓	+	✓	+	+	+	+	+	+	+	+	+
✓				Post appropriate signs on access roads to indicate speed limits, animal crossings, turnouts, blind curves, etc.									✓	✓		✓	✓
	✓			Establish minimum buffer strip between wellpad and access road for protection of recharge, water quality, and aesthetics. Note: Minimum buffer strip is determined by site-specific analysis.				✓	+	+	+	+				✓	
	✓			Construct a berm or ring levee around the drilling location. Install impermeable liners underneath the drilling rig and associated equipment including fuel storage and transfer areas. Install the liner to direct fluids to a collection point(s) for recycling or disposal.		✓		✓	+	+	+	+	+	+	+		✓
	✓			Secure drilling site with appropriate fencing, gated access road, security guard, or signs.								+	+			+	✓
	✓			Manage traffic to and from operation using two-way communications or other procedure. Drilling operations that operate continuously may be required to hire qualified security personnel to monitor egress and ingress to the drill site.												✓	✓
	✓			For air drilling, dampen particle discharge from the blooey line by treatment with a liquid sprinkler, scrubbers, or other effective controls at the blooey line discharge.	✓	✓		✓								+	
	✓			Use an inside-diameter wiping tool for drillpipe to reduce loss of drilling fluids.		✓		✓									
	✓			Maintain ample materials to increase drilling fluid density in an emergency situation. Install and maintain equipment capable of efficient, even delivery and mixing of drilling fluid weighting material.													✓
	✓	✓		Avoid locating new drilling and production operations on steep slopes to minimize soil disturbance and disruption of natural drainage patterns. Locating operations on steep slopes would not be permitted unless operator uses methods least damaging to resources and assures protection of human health and safety.		✓		✓		+	+						✓

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
	✓	✓		Design wellpad to conform to the natural topographic contours and other surface features of the area.			✓		✓							✓	
	✓	✓		For wells that may encounter hydrogen sulfide gas, prepare a contingency plan that provides an organized approach for alerting and protecting the public within an area of exposure prior to release, intentional or otherwise, of a potentially harmful volume of hydrogen sulfide.													✓
	✓			Install, test, and maintain toxic gas detection equipment prior to reaching any formations suspect of containing toxic gases.							+		+	+		+	✓
	✓	✓		Use single wellpad to drill multiple wells. Directionally drill wells to desired bottom-hole location.		✓		+	✓	+	✓	+	+	+	+	✓	+
	✓	✓		Use fuels and control technologies that minimize release of air emissions from compressors, turbines, and other equipment.	✓											+	
	✓	✓		Prevent leaks and spills by practicing regular inspection and maintenance, and good housekeeping practices.		✓			✓	+	+	+	+	+		+	✓
	✓	✓		Use dust control techniques (such as watering roads) which do not adversely impact human health and safety, soils, ground and surface water quality, or other park resources.	✓	✓			+		+	+					✓
	✓	✓		Reduce vehicle speed to minimize dust.	✓				✓		✓					+	+
	✓	✓		Flaring of gas from wells should be minimized. Such gases should be utilized for energy production with appropriate process and pollution controls applied to minimize air pollutant emissions.	✓						+					✓	✓
	✓	✓		Install and maintain catalytic converters on engines.	✓											+	
	✓	✓		Use natural gas engines or electric engines instead of engines fueled by diesel or other fuels.	✓											+	+

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
	✓	✓		Maintain thief hatch seals on storage tanks to minimize the release of volatile organic compounds.	✓											+	+
	✓	✓		When possible, use bulk drilling fluids, additives, and chemicals in reusable containers to reduce solid waste generation from empty sacks or buckets.		✓		✓									+
	✓	✓		Use less volatile solvents and chemicals during operations. Properly store and label containers to prevent degradation, overflow, or contamination. Keep containers covered when not in use to decrease loss due to vaporization.	✓	+		+	+	+	+	+	+	+			✓
	✓	✓		Use nonhazardous products or less toxic substitutes whenever possible.		+		+	+	+	+	+	+	+			✓
	✓	✓		Use and maintain, or upgrade as necessary, existing wellpads rather constructing a new wellpad if it is determined to be properly located for operation(s).	+	✓	+	✓	+	✓	+	+	+	+	+	✓	+
	✓	✓		Stabilize wellpads to avoid or minimize erosion.		✓	+	+	+	+	+	+	+	+	+	+	
	✓	✓		For drilling or workover operations, use a multi-layered or specialized impermeable liner system beneath the rig and associated equipment (including fuel and transfer areas). Use cellar as collection point for drilling fluid waste, rigwash, other fluids, etc.		✓		✓	+	✓	+	+	+	+		+	+
	✓	✓		Contain garbage in animal-proof containers for disposal at approved facilities.								✓	✓			+	+
	✓	✓		Store sanitary wastes in approved, above ground septic tank or system for disposal at approved facilities.		+		✓	+	+	+	+	+	+			✓
	✓	✓		Use biodegradable, lead-free pipe dope whenever possible.		✓		✓									
	✓	✓		Use drip pans, drip basins, or other impervious secondary containment to collect leaks, drips, and spills. Empty contents of container for recycling or proper disposal and reuse container.		✓		✓	+	✓	+	+	+				

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	<b>Drilling and Production Operations</b>  <b>Recommended Mitigation Measures</b>	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
	✓	✓		Collect and reuse rigwash for subsequent rig maintenance, for initial washing of equipment, or as make-up water in drilling and completion operations.			✓		✓	+	✓	+	+	+			
	✓	✓		Segregate or avoid mixing hazardous and nonhazardous chemicals to reduce the amount of hazardous waste for management.			✓		✓		+						✓
	✓	✓		Contour and/or ditch around chemical, fuel, lubricant, and waste storage areas to a collection point that is separate from other rig equipment and not into the cellar.			✓		✓		+						
	✓	✓		Improve work process and properly maintain facilities and equipment to minimize stormwater contamination. Note: "Contaminated stormwater runoff" includes, but is not limited to runoff which: (1) contains a hazardous substance in excess of reporting quantities defined at 40 CFR § 117.3 or 40 CFR § 302.4, (2) contains oil in excess of the reporting quantity defined at 40 CFR § 110.3 (e.g., causes a visible sheen), or (3) contributes to a violation of a water quality standard.			✓		✓	+	✓	+	+	+		+	✓
	✓	✓		Use well-designed lighting to direct light where it is needed, such as using low pressure sodium light sources or directional lighting. Keep lighting to the minimum required for safe operations; shield or design lights to prevent offsite glare, and use nighttime lighting only where necessary.									✓	✓		✓	
	✓	✓		Use appropriate sound-absorbing or sound-muffling equipment or materials such as electric motors, quiet design exhaust mufflers on vehicles and equipment, acoustic covers on equipment, and acoustically insulated buildings. Direct noise away from visitor use areas, adjacent landowners, and developed areas.									✓	✓		✓	
	✓	✓		Install, test, and maintain pressure control equipment in proper working condition. Perform weekly pressure tests of the blowout prevention system.													✓
	✓	✓		Construct and maintain firelane or firebreak along the perimeter of wellpads or production facilities. Use erosion control practices during firelane or firebreak construction and maintenance to mitigate the potential for erosion.			✓		✓		✓	+					✓
	✓	✓		Do not drill a water supply well deeper than the surface casing in areas where abnormal pressures might be encountered.					✓			+					+
	✓	✓		Minimize stormwater run-off by diverting anticipated flow of rainwater from the location by contouring, grading, berming, or trenching.			✓		✓	+	✓	+	+	+			

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
		✓		Install surface controlled subsurface safety valves on wells capable of natural flow.			✓		✓	+	✓	+	+	+			✓
		✓		Properly install and maintain an impermeable liner below storage tanks and within the firewall. Recommended liner thickness is 30 mil.			✓		✓	+	✓	+	+	+			✓
		✓		Use secondary containment under tank battery load-line connections.			✓		✓	+	✓	+	+	+			
		✓		Design casing, cementing, and completion programs to effectively control the well at all times, isolate and seal off usable-quality water zones, and isolate and seal off all potentially productive zones.		+			✓	+	+	+	+	+			+
		✓		Set storage tanks and other equipment on elevated and aerated base to prevent corrosion.			✓		✓	+	✓	+	+	+			+
		✓		Design secondary containment to eliminate or minimize collection of precipitation.			✓		✓	+	✓	+	+	+			
		✓		Whenever possible, place workover wastes into production stream.			✓		✓	+	✓	+	+	+			
		✓		Use excess well completion, treatment, and stimulation fluids in other wells.			✓		✓	+	✓	+	+	+			
		✓		Reduce leakage from common points of friction and wear (e.g., stuffing box packing rubbers, valve stems), by using magnetic ion coating technology.			✓		✓	+	✓	+	+	+			
		✓		Treat production streams with biocide or inhibitor to reduce sulfide formation.			✓		✓	+	✓	+	+	+			+
		✓		Paint production equipment to blend with the surrounding environment. The NPS must approve the selection of colors prior to painting oil and gas production equipment and facilities.												✓	

ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
				Reduce and control paint overspray; use a brush for small jobs.			+		✓		+						
		✓		Replace mercury manometers or other instruments with mercury-free instruments.		✓		✓	+	✓	+	+	+				✓
		✓		Use alternative methods to reduce sandblasting such as paint that does not require sandblast preparation, cathodic protection, or materials that do not need to be painted.		✓		✓		✓							
		✓		Design and maintain operation to reduce locations in the production system prone to NORM (Naturally Occurring Radioactive Materials) scale formation.		✓		✓		✓							✓
		✓		Periodically monitor for accumulations of NORM or NORM-containing materials to minimize volume of NORM-contaminated waste requiring disposal.		✓		✓		✓							✓
		✓		Store NORM-contaminated waste in above ground tanks for proper disposal.		✓		✓		✓							✓
		✓		Provide NORM management training for appropriate personnel of NORM-affected production facilities.													✓
		✓		Replace electrical equipment containing PCBs (polychlorinated biphenyls) with non-PCB containing equipment.		✓		✓		✓							✓
		✓		Cover the top of all open vent stacks with a screen or cage to prevent injury to birds and wildlife.									✓	✓			
		✓		Empty storage tanks and fill with water in preparation for flooding or major storm events (i.e., hurricanes).		✓		✓	+	✓	+	+	+	+			✓
		✓	✓	Provide for automatic shut-in of wells in response to pressure changes on the flowline to reduce spill volumes.		✓		✓	+	✓	+	+	+	+			✓



ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
			✓	Install flowlines and pipelines adjacent to access roads to minimize surface disturbance. This would also facilitate easy access to the pipeline for maintenance or spill response.			✓		✓	+	✓	+	+	+		✓	✓
			✓	Use only metal pipe for above-ground flowlines, gathering lines, and pipelines.			✓	+	✓	+	+	+	+	+	+	+	+
			✓	Where appropriate (based on site analysis), directionally drill flowlines, gathering lines, and pipelines via directional drilling underneath steep slopes, waterways, floodplains, and wetlands. Directionally drill underneath floodplains, waterways, and the reservoir for installation of new flowlines or replacing old sections of existing pipeline.			✓		✓	+	✓	+	+	+		✓	✓
			✓	Wherever possible, avoid or minimize flowlines, gathering lines, and pipelines crossing waterways, floodplains, and wetlands.		+			✓	✓	✓	✓	+	+		✓	✓
			✓	When possible, flowlines, gathering lines, and pipelines should parallel drainage divides and access roads.			✓		✓	+	✓	+	+	+		✓	✓
			✓	During placement of flowlines, gathering lines, and pipelines, avoid blocking or filling natural drainages.		+			✓	+	+	+	+	+			
			✓	For major stream crossings, assess potential for site degradation and migration of the stream in the proposed pipeline location.			✓		✓	+	✓	+				✓	+
			✓	Place impermeable plugs in soils where pipelines intersect waterways. Also place impermeable plugs in soils approximately every 1000 feet across long, straight segments of pipelines to prevent water flow within the pipeline route.			✓		✓	+	✓	+	+	+		✓	
			✓	Design, operate, and maintain leak detection monitoring and immediate remote shutdown of pipelines.			✓		✓	+	✓	+	+	+			✓
			✓	To minimize spills, use block and check valves on pipeline segments that cross waterways, floodplains, and wetlands. Ensure integrity of pipeline joints, especially pipelines crossing these areas.			✓		✓	✓	✓	✓	+	+			+
			✓	Regularly empty drips along gathering lines, flowlines and pipelines. Flood-proof drips to prevent to the release of oil and produced waters.			✓		✓	+	+	+	+			+	

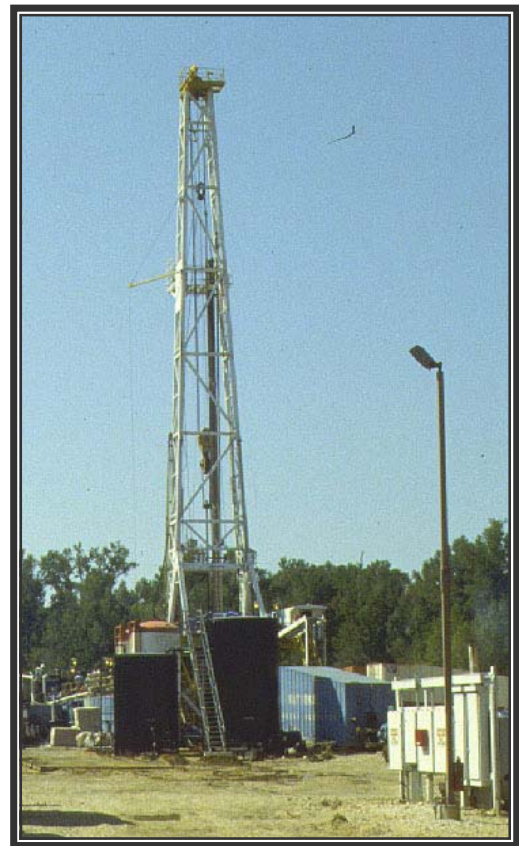
ROADS	DRILLING	PRODUCTION	FLOWLINES/PIPELINES	Drilling and Production Operations Recommended Mitigation Measures	RESOURCES PROTECTED	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience	Human Health and Safety
			✓	Use "smart pig" or other devices to test pipe wall thickness or integrity for further pressure testing or replacement. Comparative records should be kept to gauge the rate of internal deterioration and to estimate the pipeline's anticipated lifespan.		✓		✓	+	✓	+	+	+				✓
			✓	Check thickness of pipeline to determine extent of internal corrosion at least annually.		✓		✓	+	✓	+	+	+				✓
			✓	For above ground pipelines, partially rotate the lines to extend the life of the line from support contact wear and exposure of the upper half of the line.		✓		✓	+	✓	+	+	+				✓
			✓	For above ground pipelines, provide supports that minimize contact with the ground. Supports should not restrict thermal expansion and contraction of the line, be close enough to eliminate sag, and designed for maximum loading conditions.		✓		✓	+	✓	+	+	+				✓
			✓	Before placing a new pipeline in service or after replacing sections of an existing line, conduct hydrostatic test at a pressure 1.5 times the maximum designed working pressure for the system. Pressure should be maintained for at least 8 hours.		✓		✓	+	✓	+	+	+				✓
			✓	"Pig" and pre-clean pipelines prior to hydrotesting to reduce the toxicity of hydrotest water.		✓		✓	+	✓	+	+	+				✓
			✓	Minimize internal corrosion by keeping both product and pipeline free of water.		✓		✓	+	✓	+	+	+				✓
			✓	For underground pipelines, use resistivity testing of soils to forecast external corrosion problems.		✓		✓	+	✓	+	+	+				✓
			✓	Maintain a good protective coating on pipe and joints at all times (both under- and above ground).		✓		✓	+	✓	+	+	+				✓
			✓	Use cathodic protection for underground or submerged pipelines. Note: A typical cathodic protection system involves connecting the pipeline and a sacrificial anode to a direct current rectifier, thereby corroding the anode instead of the pipeline metal.		✓		✓	+	✓	+	+	+				✓
			✓	Maintain a program of regular visual, electric, magnetic, and/or acoustic inspections on pipe to assess its integrity under worst case operating conditions of pressure and temperature. If warranted based on the inspection program, conduct mechanical integrity pressure tests in accordance with standard practices.		✓		✓	+	✓	+	+	+				✓

ROADS	Drilling and Production Operations  Recommended Mitigation Measures	RESOURCES PROTECTED
DRILLING		Air Quality
PRODUCTION		Soils
FLOWLINES/PIPELINES		Paleontological Resources
✓	Place and maintain warning signs at each public road crossing, railroad crossing, and trail; and in sufficient number along the remainder of each pipeline so that its location is accurately known. Post warning signs at intersections with roads and trails. If H <sub>2</sub> S could be present in pipeline, place warning signs adjacent to pipeline.	Water (Surface and G.W.)
		Floodplains
		Vegetation
		Wetlands
		Fish and Wildlife
		T & E Species
		Cultural Resources
		Visitor Use and Experience
		Human Health and Safety

## DRILLING OPERATIONS – A PICTORIAL OVERVIEW

Similar to geophysical surveys, drilling operations are relatively short-term. However the intensity of impacts is much higher due to the equipment and materials needed to drill a well and the potential duration of the operation. The following resource issues are commonly associated with drilling activities:

- Pad construction results in soil removal (or compaction) and vegetation removal.
- Poorly constructed well sites may accelerate erosion and sedimentation further impacting soils, vegetation, water quality, fish, and wildlife.
- Uncontained oil, drilling muds, wastes, or other contaminants can degrade soils and surface and ground waters, harm vegetation, fish, and wildlife, and air quality.
- Poorly cased and cement wells (or improperly plugged wells) may lead to groundwater contamination.
- Wetlands may be damaged by construction of roads and pads or threatened by leaks and spills.
- Surface water quality may be degraded by leaks, spills, and stormwater discharges.
- Groundwater quality may be degraded by surface leaks and spills, casing leaks, and poorly plugged wells.
- Air quality may be degraded from flaring of gas, large spills, dust, and engine emissions.
- Natural sounds are interrupted by construction and drilling noises.
- Scenic quality disturbed by a tall drilling rigs, roads, pads, and miscellaneous equipment.
- Fish and wildlife may be injured by human presence, vehicles, exposure to contaminants, loss (degradation) of habitat, or unauthorized takings.
- Cultural resources may be threatened by increased human accessibility and fire.



### STRATEGIES FOR REDUCING IMPACTS FROM DRILLING OPERATIONS

- Directionally drill the well from a surface location outside the park. Operators will benefit from less regulatory control by the National Park Service and the NPS will benefit by removing all direct impacts to park resources.
- Maximize the use of existing roads, wellpads, and other surface disturbances.
- Use directional drilling from a single pad to reduce the number of wellpads and access roads needed to develop a field. This strategy could also be used to avoid environmentally sensitive areas.
- Time the drilling operation to avoid critical wildlife migration, breeding, nesting, and birthing or high visitor use periods. Seasonal weather conditions may also factor into the proper timing of the operation.



Advances in directional drilling make it a powerful tool for avoiding environmental impacts. The extra costs to directionally drill a well are often offset by savings in road and wellpad construction. This aerial photograph shows the extensive surface disturbance from roads and pads for a normal well spacing in an oilfield.

This two-acre wellpad in Big Cypress National Preserve provides surface locations for three directionally-drilled wells and production facilities. Three straight holes with the associated wellpad, roads, and flowlines may have disturbed up to six additional acres.





This drilling and production pad on the North Slope of Alaska is developing an entire field from one location designed for 20 initial wells. The footprint from drilling and production is about 1/20th of what it would have been using conventional development with straight holes, multiple roads, and the necessary gathering system.



## DRILLING PAD DESIGN

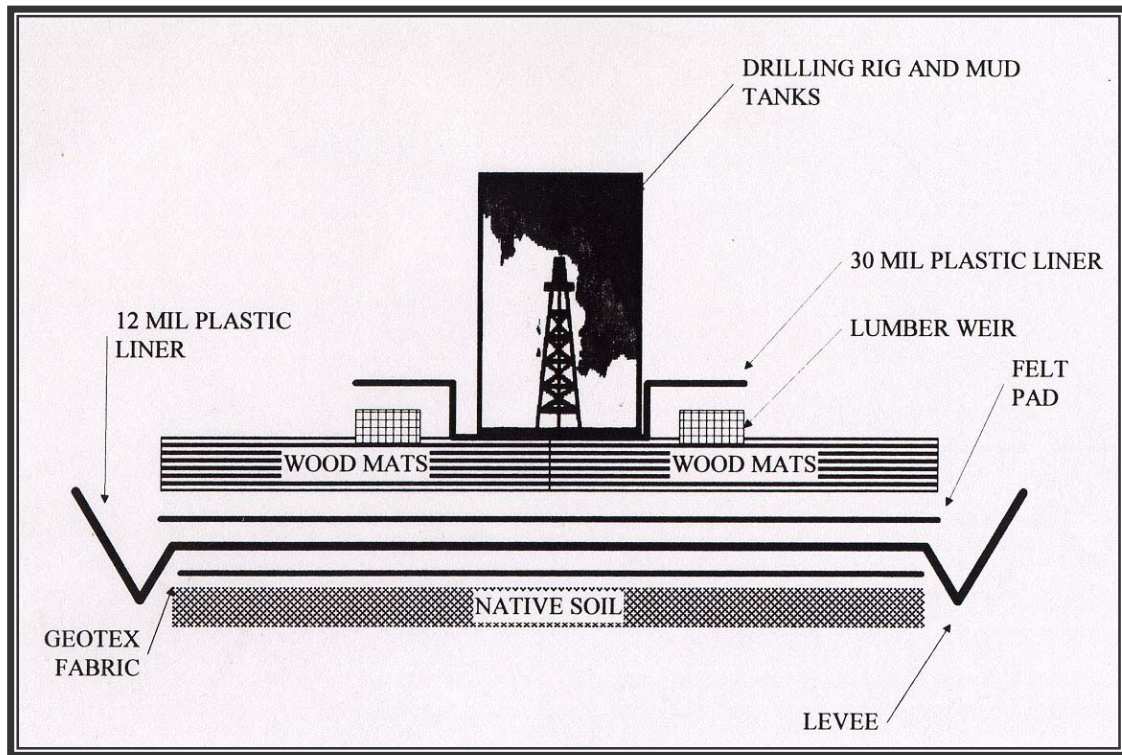
### Strategies to Reduce Environmental Risks

- Use impervious liners under all of the rig equipment, mud tanks, pipe racks, and other sources of spills to prevent soil contamination and to provide for effective stormwater management.
- Slope wellpad to the well cellar or other low point to collect spills and contaminated stormwater that collects within the lined area.
- Build a berm and/or ring levee around the entire location to provide backup should a spill escape from the lined area under the rig components. The fill for the pad should be relatively impermeable so not much seepage should occur if a spill escapes the lined areas.
- Line and berm areas for storing fuels, lubricants, chemicals, and waste. Contour and/or ditch the storage areas to a collection point separate from other rig equipment and not into the cellar (to prevent mixing RCRA "exempt" and "nonexempt" wastes).
- Seal the cellar, mouse hole, and rathole by grouting with cement or other methods to prevent seepage of contaminants.



This drilling location in Padre Island National Seashore incorporated all of the above strategies when designing and constructing the location.





The operator of this drilling operation in Big Thicket National Preserve used a configuration of geotex fabric, synthetic liners, and board mats to construct a zero-discharge location.

A 30-mil liner under the rig and associated equipment provided the primary protection against spills and discharge of stormwater that would likely come in contact with contaminants.

An 18-mil liner under the entire location, and across the ring levee, provided backup for the primary liner. Stormwater that collected in the ring levee could be inspected prior to discharge or disposal.

A vacuum pump and hose setup was kept on location to easily collect and manage liquids that accumulated in the lined areas.



Shown above, the ring levee and wellpad are covered with a plastic liner and board mats are placed on the liner. Equipment is spotted on primary liner (below).

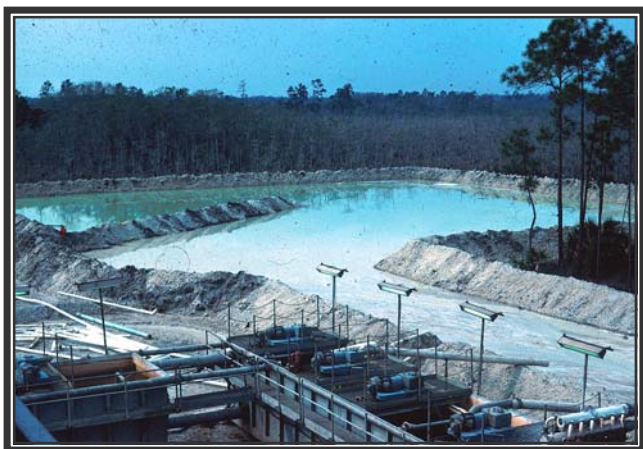




## ENVIRONMENTAL PRECAUTIONS DURING DRILLING OPERATIONS

### Earthen Reserve Pits Versus Steel Tanks

- The NPS no longer allows the use of earthen pits, even lined pits, inside a park. Wells drilled from surface locations outside the park may use earthen pits provided the operator constructs and maintains the pit to prevent migration of its contents.
- Inside a park unit an operator must use a fully containerized, closed-loop drilling fluid system in place of an earthen reserve pit system. This technique drastically reduces the potential for soil and water contamination. The closed-loop system usually needs less area than an average reserve pit so the operator can reduce the overall drill site area and area of potential impact.



This earthen reserve pit would no longer be appropriate for operations inside a park. Pits create more surface disturbance and are more likely to leak contaminants to the environment.

Steel tanks that hold water, reserve mud, and cuttings replace the need for traditional earthen reserve pits.



## CUTTINGS AND MUD DISPOSAL

- Use an efficient mud cleaning system and catch cuttings in steel tanks.
- Disposal of wastes will not be permitted inside a park.
- Dispose of mud and cuttings at an approved disposal site outside of the park.



Above, the well cuttings are loaded into a truck using a backhoe.

To the left and below, the operator collected drill cuttings in 85-barrel steel boxes that were mounted on railroad tracks. The filled boxes were slid out and replaced by empty ones. After a box was filled, it was sealed and loaded on a truck and hauled to an approved disposal site outside of the park.

The closed-loop mud system was designed to efficiently remove drill cuttings from the mud, and included a Derrick Flo-Line Cleaner, a high-G mud cleaner, and a decanting centrifuge.





HANDLING FUELS, LUBRICANTS, CHEMICALS, AND WASTE



The operator could provide a shed to keep sacked mud additives out of the weather, thus reducing the chances of a spill. Mud additives may have to be handled as hazardous materials if they are spilled before becoming part of the mud system.

Stained soil under the bulk lube oil storage tank and the engines indicate sloppy handling procedures. No secondary containment is provided. Lube oils do not qualify for the RCRA hazardous waste exemption for E&P waste.



This operator provided a lined area for storage of chemicals and lube oil. Unused fracturing fluids are not exempt E&P wastes. This operator has taken the precaution of separating fracturing operations from other areas to avoid mixing RCRA hazardous and nonhazardous waste.

Fuels must also be kept in separate secondary containment areas from muds, rig wash, etc. With no secondary containment under the storage tank (right), the stained soils become a hazardous waste.



In the photo on the left the operator is aware that secondary containment is a good idea for fuel storage, but fails to plan until the last moment which results in poor execution.



In the example to the left and below, the operator plans for secondary containment under fuel storage. As a result, the chance of a fuel spill causing significant cleanup problems has been virtually eliminated.



### PRODUCTION OPERATIONS – A PICTORIAL OVERVIEW

While production operations tend to cause less disruption to the natural environment than drilling operations, they carry their impacts over a much longer time frame. The following resource issues are commonly associated with production activities:

- Soil contamination from old production pits, leaks, and spills.
- Soil erosion and sedimentation associated with disturbed areas.
- Vegetation damage from leaks and spills, and fire.
- Wetlands damaged or threatened by leaks and spills.
- Surface water quality degraded by leaks, spills, and stormwater discharges.
- Groundwater quality degraded by surface leaks and spills, casing leaks, and poorly plugged wells.
- Air quality degradation from flaring of gas, large spills, pits, dust, and engine emissions.
- Natural sound are interrupted from vehicles, pump jacks, pumps, compressors, etc.
- Scenic quality is broken up by permanent facilities, roads, pads, and miscellaneous equipment.
- Fish and wildlife are injured by human presence, vehicles, exposure to contaminants, loss (degradation) of habitat, or unauthorized takings. Cultural resources are threatened by increased human accessibility and fire.

Looking over the list above, one can readily see that leaks and spills of oil, brine, or other contaminants that may be used in operations are a key concern. Soils, vegetation, water quality, fish and wildlife, and air quality can all be adversely affected by the release of contaminants into the environment. Operators should strive to prevent releases by using good work practices and properly maintaining production equipment. Operators should also design secondary containment safeguards into their sites, and then respond quickly to clean up and remove spills that do occur.



## WELL SERVICING AND WORKOVER OPERATIONS

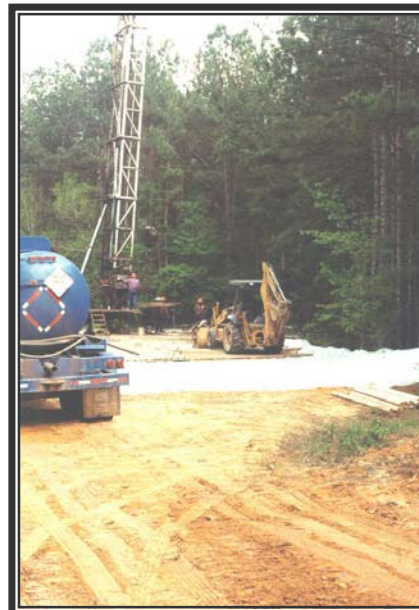
### Strategies for Clean Well Servicing and Workover Operations

- Maintain a sealed well cellar so that spills around the wellhead are easy to contain and remove. The cellar also helps in the production mode.
- Use a synthetic liner and board matting under rig components and construct berms/trenches to direct liquids to cellar.
- Use steel tanks to hold workover fluids and all liquids and solids returned from the well until they can be removed from the site.
- Contour and/or ditch around chemical, fuel, lubricant, and waste storage areas to a collection point separate from other rig equipment and not into the cellar (to prevent mixing RCRA "exempt" and "nonexempt" wastes).



### Proper Site Preparation Leads to Cleaner Operations

A worker forms a small, inner berm just around the wellhead, the area most prone to spills. A synthetic liner is laid down over the larger bermed area. Board mats set on top of the liner will help maintain its integrity during operations.



- Any spills underneath the rig and associated equipment can be washed to the cellar for collection.
- A small pump can be used to move liquids that might accumulate in the cellar to appropriate tanks or containers for reuse or disposal.

**PRACTICES TO AVOID DURING WELL SERVICING AND WORKOVER OPERATIONS**



- The operator shown above did not consider spill control and containment during this operation. There are no berms or liner.
- Soils are soaked with oil within a 10-foot radius of the wellhead. A general lack of good housekeeping and not only is the surrounding environment at risk, but so are the health and safety of the workers.
- The location set-up has a strong likelihood for unlawful stormwater discharges. If stormwater comes into contact with any raw material, waste, or by-product, or an oil sheen is visible, the operator may not discharge the stormwater without a NPDES (National Pollutant Discharge Elimination System) permit issued by the Environmental Protection Agency.
- Though not clearly shown here, there is no well control equipment in place.



## SECONDARY CONTAINMENT FOR STORAGE TANKS AND SITE SECURITY



### Poor Operating Practices

- No diking is provided for the storage tank.
- In the event of a failure, tank contents will quickly move downhill and spread over a large area.
- There are no operator identification signs on the site.
- Tank valves are unlocked.
- There is no fencing in this public access area.

### Better Operating Practices

- A berm is in place to contain spills.
- A sign identifies the site name, operator, and emergency contact information.
- A fence with a locked gate protects wildlife, visitors, and guards against vandalism.



### Minimum Sign Information that is Required in a Park Unit:

- Site Name
- Operator Name
- Emergency Contact Number



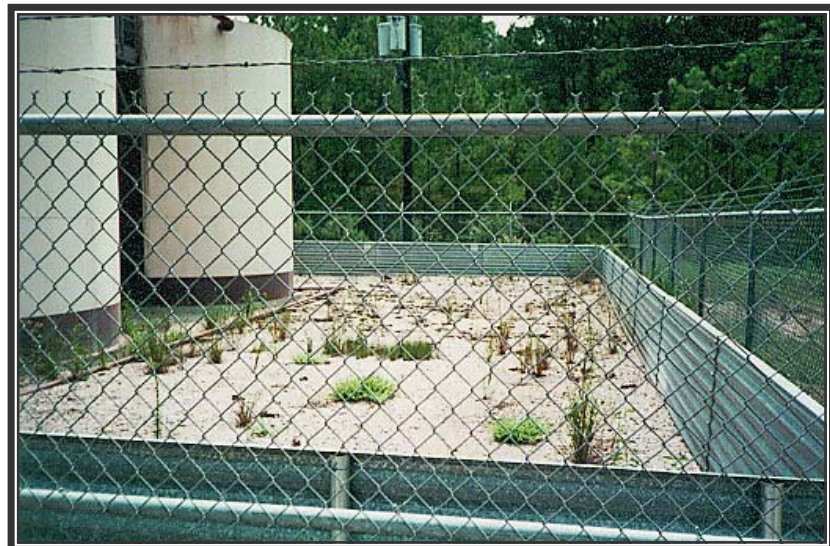
### BERM DESIGN AND CONSTRUCTION

- Berms should be constructed with materials sufficiently impervious to contain spills.
- Berms should be designed and constructed with sufficient perimeter and height to hold 1.5 times the volume of the largest tank.

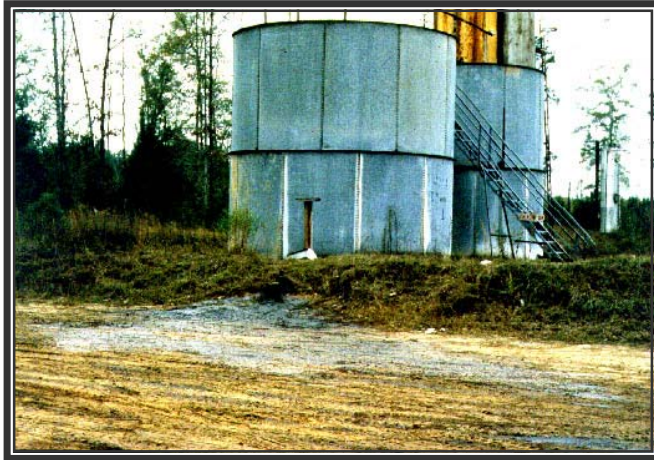


This operator placed the synthetic liner (from the drilling operation) beneath the tanks. The liner was folded into the berm, which was then reinforced with a cement mixture.

Containment systems constructed with corrugated galvanized steel are commercially available as an alternative to earthen dikes.



## TANKER TRUCK LOADING



### Poor Design and Practices

- Poor design and careless procedures yield undesirable results.
- No secondary containment is provided beneath loading line connection.
- Sloppy loading procedures lead to spills.
- There are no clean up efforts at this site.

### Good Design and Practice

- Loading line connection over secondary container prevents and catches any drips or fluid loss when breaking the connection.
- Lid prevents rainwater from filling the container, which might displace oil. Oil should be removed as accumulation occurs.
- Clean site indicates careful loading procedures.



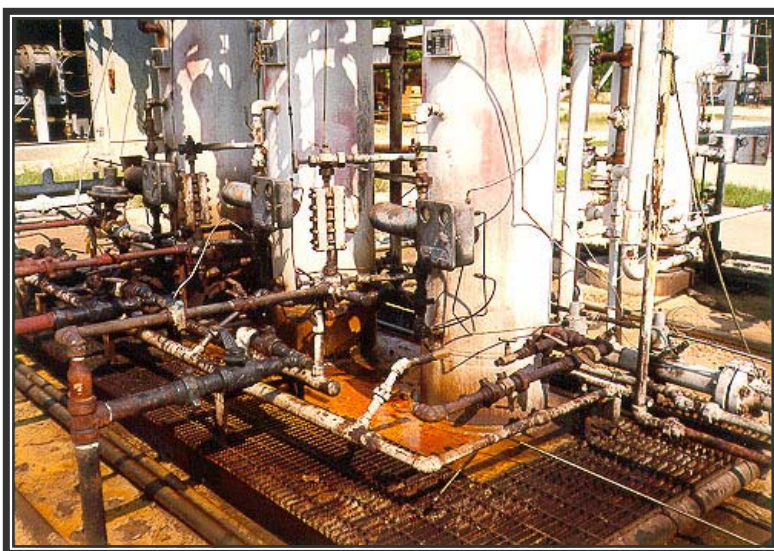
### Better Design

- Loading box located inside the tank's bermed, lined area adds another level of protection.
- Design is exemplary, but note the extension hose coming from the loading box. Could the truck driver's loading procedure negate all of the designed safeguards?



### STORMWATER MANAGEMENT

**THE LAW:** Operators must comply with Section 402(p) of the Clean Water Act regarding stormwater discharges. If stormwater comes into contact with any raw material, waste, or by-product, or an oil sheen is visible, the operator may not discharge the stormwater into waters of the United States without a NPDES (National Pollutant Discharge Elimination System) permit issued by the Environmental Protection Agency (EPA). “Waters” are very broadly defined and include any conveyance, including drystream channels, that lead to waterways. According to the EPA, the operator does not need a NPDES permit if discharged stormwater is not contaminated with, or comes in contact with, any raw material, intermediate product, finished product, by-product, or waste product. Permits for onshore discharges are issued by the states (which have been delegated primacy from the EPA), the EPA, or both.



Small leaks and drips around these separators indicate that the equipment is not adequately maintained or cleaned up. Stormwater comes in contact with oil and any other chemicals added to the production stream. Stormwater accumulates on the location until it flows through the unvalved, untended drainline shown below.

Oily absorbent material and sheen on the water below the drain indicate past discharges of contaminated stormwater. This is a violation of the Clean Water Act. Notice that the vegetation (lighter colored) has been damaged by the releases.



### **Strategies to Effectively Comply with the Law on Stormwater Discharges**

- Repair and clean up small leaks and spills so that stormwater cannot come in contact with raw material, waste, or by-products and become contaminated.
- Use secondary containment around tanks, vessels, chemical storage, and other sources of leaks and spills so that stormwater that may become contaminated is not discharged.
- Any drain lines through dikes should be equipped with valves/blinds that are normally closed and locked. Supervise discharges once the stormwater is determined to be uncontaminated.
- Provide for collection of contaminated stormwater to tanks or vessels for recycling or disposal.
- To reduce the volume of stormwater, use the smallest practicable area for installation of tanks, vessels, chemical storage, etc. Also, prevent stormwater from running onto the location using diversion ditches and/or diking.



This operator designed the separation, storage, and chemical injection facilities all within a relatively small lined and bermed area. The smaller area limits the volume of stormwater that must be managed.

The operator also installed a small diaphragm pump that is plumbed to either discharge uncontaminated stormwater or recycle contaminated stormwater to the separation facilities. The pump is operated manually so that any stormwater can be inspected, then tended during discharge.





## CHEMICAL HANDLING

### Strategies for Sound Chemical Handling

- Use secondary containment under chemical drums and bulk containers.
- Use bulk containers to remove the need for drum handling, drum storage, disposal or recycling of empty drums, all of which increase the chances for a spill.
- Inspect injection system (container, lines, and pump) regularly and perform maintenance as needed.
- Clean up and remove any chemicals that drip into secondary containers.
- Drain uncontaminated rainwater that collects in secondary containment or use a design that does not allow rainwater to collect in secondary containment.

### Poor Chemical Handling

- The lack of secondary containment under drums is compounded by sloppy work habits.
- The chemical stained soils do not qualify for the RCRA Subtitle C exemption for oil and gas wastes and must be handled as hazardous waste.

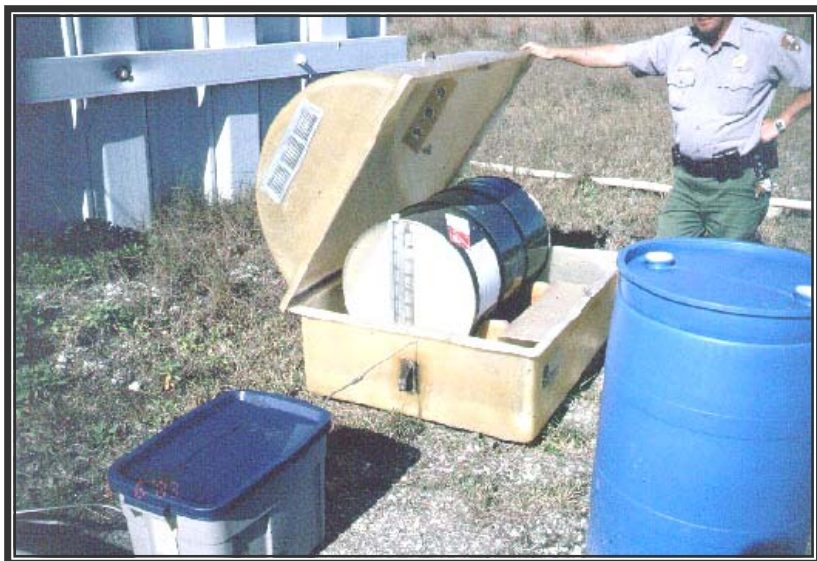


### Better Chemical Handling

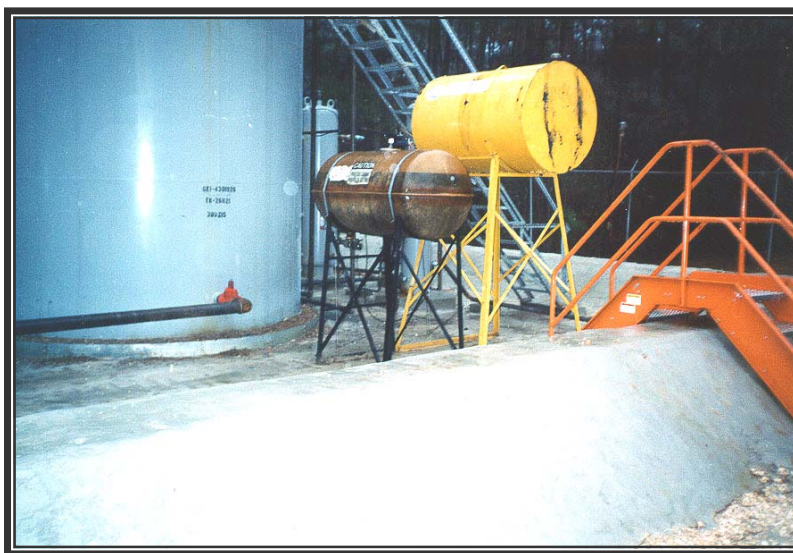
- A bulk storage tank and the chemical injection pump, a common source of leaks and drips, are mounted over secondary containment.
- Clean work habits are readily apparent.

## Other Good Chemical Handling Practices

- Dubbed the “coffin container” by this operator, the method removes the need to deal with stormwater that may collect in the secondary containment.
- A simple plastic storage tub is adapted to provide secondary containment for the chemical pump.

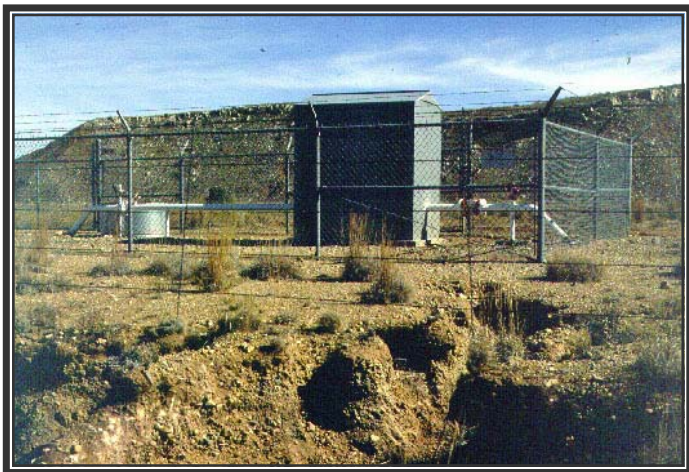


The operator in this photo uses bulk chemical storage and places them inside the storage tank's lined and bermed area.





## VEGETATION AND EROSION MANAGEMENT



### Erosion Control

This gas well site is well maintained except for the erosion that is occurring. The operator could use drainage ditches combined with soil stabilization, such as grass seeding, to control erosion.

### Manage Vegetation on Site

Manage vegetation by cutting, using approved herbicides, or use of pad materials that inhibit plant growth. This operator maintains low vegetation on the wellsite to reduce the potential for erosion. Note also the small berm around the wellhead to contain small leaks.



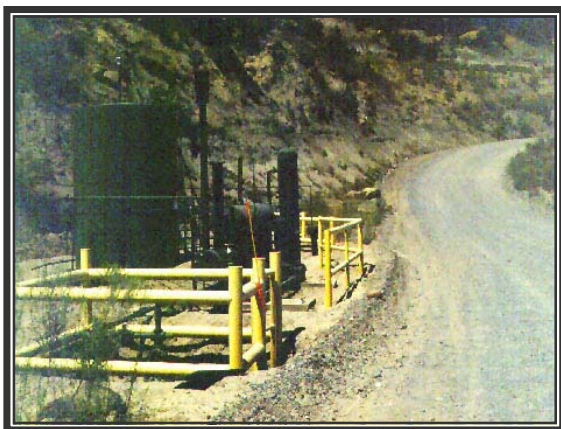
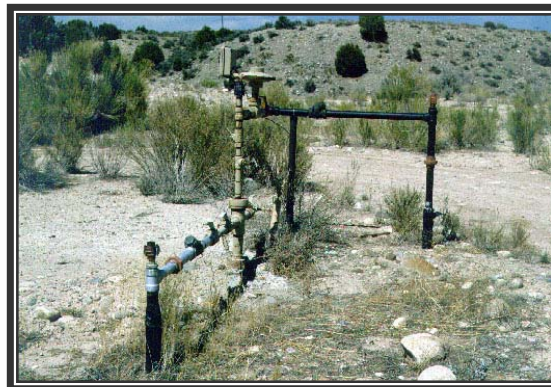
Vegetation should never be allowed to reach a point where it becomes a fire hazard.

Operators should maintain an adequate fire break around their wells and storage facilities.

The operator of this well maintains an area free of vegetation around the clean, small pumpjack.

## SITE SECURITY

This gas well is located just off a blind curve on a public use road. No protection around the wellhead increases the risks to both the environment and to visitor safety.



A strong steel barrier fence protects this facility from traffic accidents. The yellow safety paint also helps to alert motorists to the presence of the well.



Fencing in areas used by the public adds to visitor safety and helps protect the operator's facility from tampering.

Locked gates on access roads can also be an effective means of site security.





## AESTHETICS



### Noise Management

This compressor site is located near a visitor use area and noise from the facility was a primary visitor use issue.

To mitigate the noise problem, this operator maintained the standard muffling equipment, and also constructed an 8-foot corrugated metal wall to serve as an effective noise barrier.



### Vegetative Screening

This well was sited in mature pine forest. This was done not only to move it away from the riparian corridor, but also to minimize its visibility from a primary use U.S. Forest Service road.

The location was selected to protect a more sensitive environment and maintain the aesthetics of the area.

## GOOD HOUSEKEEPING OF THE OPERATIONS SITE

Good housekeeping of the site improves aesthetics, worker safety, and the environmental protection.

- Remove trash, oilfield debris, and equipment that are no longer needed for the operation.
- Fence where appropriate to prevent access by the general public or wildlife.
- Post signs to warn of dangerous conditions such as flammable liquids or gases, high voltage, or hydrogen sulfide.
- Post signs with name of facility and operator along with emergency contact numbers.
- Control vegetation by cutting, mowing, or using approved herbicides to improve appearance and reduce fire hazard.
- Paint equipment (using colors compatible with the setting) to improve appearance and protect against external corrosion.
- Provide receptacles for trash and empty regularly or carry out trash as it is generated.

A well-maintained pump jack operation...



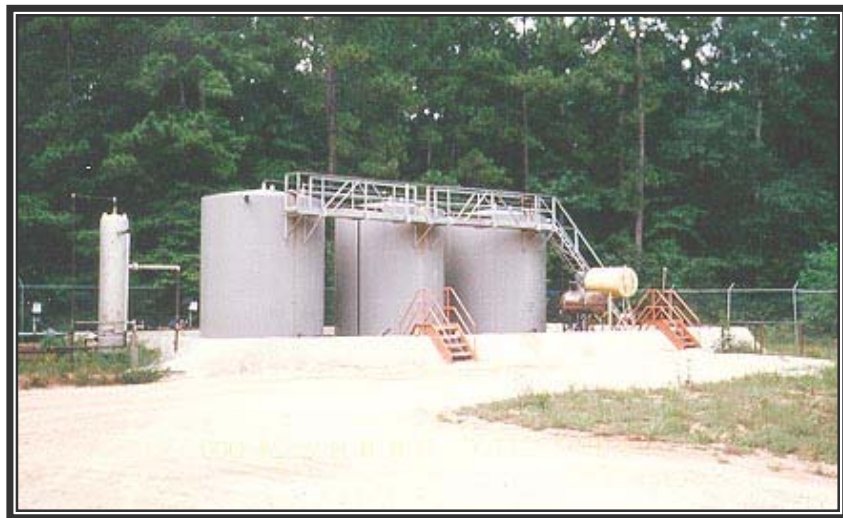
...versus a poorly-maintained pump jack operation.





This poorly-maintained tank battery lacks berm integrity, vegetation control, signing, fencing, paint, and secondary containment under the loading lines. A closer look would reveal trash, oilfield debris, and inoperable equipment.

...the opposite - a well maintained production facility.



Here are two similar flowing oil wells with obvious differences in site maintenance.



## ACCESS ROADS – A PICTORIAL OVERVIEW

A single lane, mile long access road will disturb about the same area as a 1.5-acre drilling pad. Unlike a square drilling pad, a road's impacts stretch along its distance often through very diverse environments. The following resource and management issues are commonly associated with road construction and maintenance:

- Road construction results in soil removal (or compaction) and vegetation removal.
- Poorly constructed access roads may accelerate erosion and sedimentation downslope, further impacting soils, vegetation, water, fish, and wildlife.
- Roads may intrude upon the viewshed.
- Dust from construction and use of roads can degrade local air quality.
- Roads may alter authorized and unauthorized use of park areas by providing new means of access.





### STRATEGIES TO REDUCE IMPACTS FROM OIL AND GAS ACCESS ROADS

- Use existing roads as much as practicable. Sometimes trails, primitive roads, or light duty roads can be upgraded to handle the needs of a drilling access road.
- Plan the road route using topographic and soils maps and aerial photographs while considering problem soils, streams, and road grade. Archeological information may also be available from parks during the initial road planning steps. Ground truth and adjust route as needed to avoid sensitive resource areas.
- Get water off the road with water bars, dips, and culverts along with wing ditches.
- Empty water bars, dips, culverts and wing ditches gently onto non-erosive, stable areas.
- Avoid siting access roads along steep slopes to reduce the area of cut and fill.
- Avoid fragile and difficult to reclaim ecosystems such as wetlands.
- Stabilize and revegetate cut and fill areas, ditches, and outlets to minimize erosion.
- Minimize the number and size of stream crossings. If a crossing cannot be avoided, properly design and install roadway to prevent obstruction of stream flow.

Road planning is a balancing act - weighing the road's function and construction and maintenance costs against environmental concerns. This road was routed on the slope to avoid the sensitive wetland area.



Weed free straw bales were placed to temporarily prevent sedimentation into the wetland. If the exploration well had been successful, the operator planned to control erosion and sedimentation over the long term by vegetating the cut and fill areas.

## ACCESS ROAD PROBLEMS

- Local soils are not suitable road base material.
- No consideration was given to getting water off the road or to erosion and sedimentation problems.
- As a result, access is difficult at best during wet weather and maintenance issues are persistent. Erosion, sedimentation, and unnecessary new surface disturbance negatively effect the local environment.



### Remedies

- Bring in good road base material, crown the road and build a side ditch along the existing slope.
- Gently discharge water across the road using water bars, dips, and culverts making sure that the discharge areas are stable.
- Recontour and revegetate the areas of disturbance since users will now be able to stay on the road.



### No Access Road Problems

This road was built on soils similar to the photograph above. The key difference is the use of gravel to build a suitable road base. The road is crowned and discharges water into vegetated, stable areas. The operator controls vegetation on the roadway by mowing.





The two roads shown to the left and below are located near each other and are constructed in relatively level areas with similar soil types. In the photograph to the left, the operator built a compacted crowned road and placed ditches along the sides to keep water off the road. Below, the operator just bladed the road, and headed off cross country.

The bladed road collects rather than discharging water. Users trying to avoid getting stuck by the excessive rutting and potholes create more surface disturbance by driving off of the roadway in undisturbed areas. Soon the 10-foot wide road has widened to 20 feet wide.



In this example of a bladed road, the surface runoff is channelized down the roadway. This depletes water from some downslope areas and channelizes and dumps excessive water in other areas. Water erodes the road creating maintenance issues. The sediment-laden water is eventually discharged at some point along the road causing additional erosion and sedimentation.

Board roads are a viable alternative in some areas to provide temporary access for exploratory drilling. The road on the right, located in Big Cypress National Preserve provided suitable access to drill a well during the dry season.



The exploratory drilling was successful, and the road was upgraded using crushed limestone to provide all-weather access for the production phase of the operation. Installation of culverts has helped maintain the sheetflow that occurs during the wet season in the Preserve.



In this example, the operator upgraded a light duty road to handle the rigors of moving heavy drilling equipment. Commonly, road upgrades will have little, if any increased environmental impacts.

In fact, some upgrades can improve environmental conditions by removing erosion problems and disruptions in the local drainage patterns.





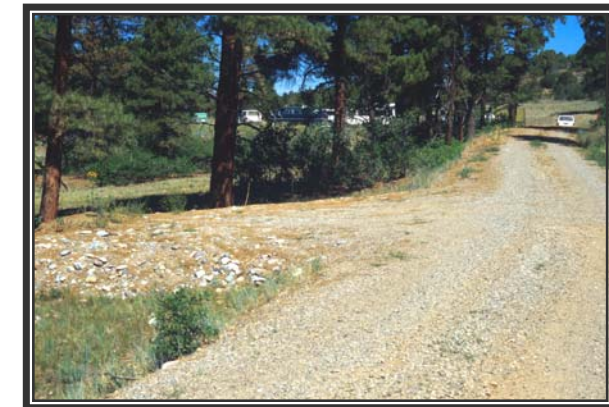
### GATES AND SIGNS



The entrance point to oilfield roads should be controlled with gates and signs as appropriate.



When a road is gated and locked or a sign is posted to limit use of the road to authorized personnel only, it is a good idea to construct a turnout so that vehicles can turn around.



During drilling operations, a watchman was stationed at the entrance to this access road. The watchman limited road use to authorized personnel and used radio communications to control traffic along the single lane road. A gate and lock was also available for use.

## **CHAPTER 5**

# **APPLICATION FOR DIRECTIONALLY DRILLING A WELL FROM OUTSIDE PARK BOUNDARIES TO INSIDE A PARK UNIT**

This chapter includes the following information:

- NPS permitting process checklist for §9.32(e) operations,
- Operator benefits from drilling outside the park under a §9.32(e) exemption,
- 36 CFR §9.32(e) application process,
- List of mitigation measures to minimize potential threats to park resources and values, and
- Information requirements for the NPS to process §9.32(e) Applications.

### **NPS PERMITTING PROCESS CHECKLIST FOR §9.32(e) OPERATIONS**

The following checklist outlines the permitting process for directional drilling and production operations from outside units of the NPS. The items on the checklist are described throughout this handbook. This checklist can be used by an oil and gas operator to make sure that all of the required steps have been completed to apply for and have a §9.32(e) application approved by the National Park Service.

- ☐ Operator contacts park regarding interest in conducting oil and gas operations from outside the boundaries of the park (for more information, see CH 2).
- ☐ Operator provides written documentation demonstrating right to conduct operations (for more information, see CH 2).
- ☐ Operator meets with park staff to scope proposed project (for more information, see CH 2).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area (for more information, see CH 2).
- ☐ Operator prepares §9.32(e) application and submits draft application to the National Park Service (for more information, see CH 5).

The §9.32(e) Application for directional drilling and production operations must include the following sections:

- ☐ I. Contact Information
  - ☐ II. Legal Ownership Information
  - ☐ III. Maps and Plats
  - ☐ IV. Project Description
  - ☐ V. State Permits
  - ☐ VI. Information to Facilitate NPS NEPA Compliance
- ☐ NPS performs a completeness and technical review of the §9.32(e) application (for more information, see CH 2).
  - ☐ Operator revises §9.32(e) application, if necessary (for more information, see CH 2).

- ☐ Park staff prepares NEPA document (or adopts operator's or consultant prepared NEPA document), incorporates other environmental compliance, and initiates mandated consultations with other agencies (for more information, see CH 2).
- ☐ Park completes public review process, finalizes decision documents, and notifies the operator that the application has been approved, conditionally approved, or rejected (for more information, see CH 2).
- ☐ Operator agrees to conditions of approval (if any) and submits applicable state and federal permits (for more information, see CH 10).

Drilling from a surface location outside the park to (or through) downhole points underneath federal surface inside the park is subject to the 9B regulations.<sup>1</sup> However, operators can apply for a regulatory exemption from the plan of operations requirement under §9.32(e) if the NPS can determine from available information that "...such operations pose no significant threat of damage to park resources, both surface and subsurface, resulting from surface subsidence, fracture of geological formations with resultant fresh water aquifer contamination, or natural gas escape, or the like." (36 CFR §9.32(e))

### **OPERATOR BENEFITS FROM DRILLING OUTSIDE THE PARK UNDER A §9.32(e) EXEMPTION**

In addition to the obvious benefits of protecting park resources and values, there are other reasons why an operator may consider moving their surface location outside of the park. Cost savings in other areas of the operation could significantly offset the increased costs and operational risks of drilling a directional well.

An operator might consider these factors when deciding on a surface location:

- Reduced cost of the §9.32(e) application compared to a plan of operations,
- Reduced time for preparation and approval of a §9.32(e) application compared to a plan of operations,
- No performance would be required for operations under a §9.32(e) exemption,
- Reduced operational costs due to less NPS environmental operating requirements outside of a park,
- Reduced reclamation costs due to less NPS reclamation requirements outside a park, and
- Improved public relations by removing environmental threats to a National Park unit.

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<sup>1</sup> From 36 CFR §9.32(e): "Any operator on a site outside the boundaries of a unit must comply with these regulations if he is using directional drilling techniques which result in the drill hole crossing into the unit and passing under any land or water the surface of which is owned by the United States..."

### 36 CFR §9.32(e) APPLICATION PROCESS

Step 1: The operator decides if the well drilling objectives can be achieved using a surface location outside of the park.

Step 2: The operator scopes the project with the NPS and submits an application for a regulatory exemption from certain requirements in the 9B regulations (most notably the plan of operations and performance bonding requirements). In the application, the operator provides specific information to the NPS that can be used to prepare the NEPA documentation (environmental assessment). The information would include contact and legal ownership information, a description of the operation, methods that would be used to minimize or avoid impacts on park resources, and supporting data collected for other agency permits. *Appendix C* includes the sample letter - *Request for a Regulatory Exemption from the Plan of Operations and Performance Bond Requirements* that can be used by an operator that is requesting a regulatory exemption from certain 9B requirements.

Step 3: Based on the environmental analysis, the NPS regional director decides if the operation as proposed poses a significant threat to park resources. If not, the regional director grants a regulatory exemption from the plan of operations and bonding requirements and other 9B provisions as appropriate.

In general, distance from the park will be the primary mitigation measure used by the operator to avoid or minimize adverse impacts on park resources and values. In most cases fewer mitigation measures will be necessary if the operation is moved farther away from the park. Siting the well operation away from rivers that flow into the park would also reduce the potential for impacts on park resources.

An operator's application needs to provide sufficient information to show the superintendent that the operation would not pose significant threats to park resources and values. The application must include a description of the mitigation measures that the operator proposes to use to reduce these threats below the "significant" threshold. Table 5.1 lists potential threats to park resources and values and describes strategies (mitigation measures) that the operator could use to avoid or reduce the severity of the potential impacts. The reader is also referred to Table 4.2 for a comprehensive list of recommended mitigation measures for drilling and production operations.

**Table 5.1. Suggested Mitigation Measures to Minimize Potential Threats to Park Resources and Values from Directional Drilling Operations Outside a NPS Unit**

Threat To Park Resources And Values	Mitigation Measure
<b>All park resources and visitor health and safety</b>	<ul style="list-style-type: none"> <li>The primary mitigation measure is often distance from the park boundary. In most cases, increasing the distance between surface operations and the park boundary will reduce potential threats to park resources and values.</li> </ul>
<b>Contamination of park soils and surface and ground waters (aquifers)</b>	<ul style="list-style-type: none"> <li>Site operations down gradient from the park if possible.</li> <li>If only up gradient locations are feasible, then try to site operations at least 500 feet from the banks of watercourses.</li> <li>Construct dikes, berms, ring levee/ditch around drilling location.</li> <li>Prepare a Spill Prevention Control &amp; Countermeasure Plan for drilling and production operations at the wellsite including identification of toxic or hazardous substances; spill prevention and containment actions; emergency contacts, including park staff contact; and type of response and clean-up materials and equipment available on site.</li> <li>Use containerized mud system or lined reserve pits.</li> <li>Use secondary containment around fuel, crude, and brine tanks and vessels.</li> <li>Substitute less toxic materials where practicable.</li> <li>Reduce and properly store wastes.</li> <li>Run surface casing (or intermediate casing if appropriate) below fresh water aquifers and run cement to surface.</li> <li>Control rig wash &amp; stormwater.</li> <li>Plug well in accordance with state and NPS standards to protect fresh water aquifers.</li> </ul>
<b>Alteration of water quantity/quality in the park</b>	<ul style="list-style-type: none"> <li>Use good stormwater discharge practices to prevent release of contaminants into the park.</li> <li>Design access road and pad to prevent soil erosion in the park.</li> <li>Design access road and pad so that it does not impede surface water flow into the park.</li> <li>Avoid siting the wellpad in a floodplain or wetland. If floodplains or wetlands cannot be avoided, apply protective measures to prevent release of contaminants into the park.</li> </ul>
<b>Nuisance or safety hazard from hydrogen sulfide (or other gases)</b>	<ul style="list-style-type: none"> <li>Develop warning system and contingency plan for H<sub>2</sub>S if such toxic gas may be encountered during drilling and production operations.</li> <li>Use materials and equipment resistant to H<sub>2</sub>S stress cracking where necessary.</li> <li>Install and maintain appropriate well control and safety equipment.</li> </ul>
<b>Fire hazard</b>	<ul style="list-style-type: none"> <li>Practice good housekeeping of site.</li> <li>Use proper well control equipment and practices for both drilling and production.</li> <li>Do not have open fires.</li> </ul>
<b>Alteration of topography in the park</b>	<ul style="list-style-type: none"> <li>Prevent erosion from surface runoff.</li> <li>Implement reservoir pressure maintenance if subsidence is known to occur with reservoir depletion.</li> </ul>
<b>Alteration of vegetative community in the park</b>	<ul style="list-style-type: none"> <li>Avoid clearing of vegetation immediately adjacent to park boundary.</li> <li>Consult with NPS staff on site restoration methods to prevent exotic plant species introduction in the park.</li> </ul>
<b>Harm to park wildlife</b>	<ul style="list-style-type: none"> <li>Advise all oil and gas personnel of NPS regulations regarding illegal taking of wildlife on adjacent park lands.</li> </ul>

<b>Threat To Park Resources And Values</b>	<b>Mitigation Measure</b>
	<ul style="list-style-type: none"> <li>• Restrict public access to the well site to reduce potential for wildlife “poaching” in the park.</li> <li>• Fence and net open pits if they attract wildlife.</li> </ul>
<b>Harm to threatened or endangered species</b>	<ul style="list-style-type: none"> <li>• Comply with Section 9 of the Endangered Species Act.</li> <li>• Avoid siting surface operations near threatened or endangered species habitat in the park, particularly during nesting/breeding periods.</li> </ul>
<b>Damage to park cultural resources</b>	<ul style="list-style-type: none"> <li>• Avoid siting surface operations in close proximity to park cultural resources.</li> <li>• Use construction and operation methods to keep all impacts of the drilling and production operation localized on the wellpad to ensure protection of cultural resources in the park.</li> <li>• Apply methods to reduce visual and noise intrusion if traditional Native American cultural sites in the park are located near the operation area.</li> </ul>
<b>Degrade air quality in the park</b>	<ul style="list-style-type: none"> <li>• Maintain engines in good running condition.</li> <li>• Control dust during access road and pad construction.</li> <li>• Flare gas instead of venting gas.</li> </ul>
<b>Adverse impacts to park visitor experience and safety</b>	<ul style="list-style-type: none"> <li>• Maintain vegetation near park boundary to conceal operations from park visitor use areas such as trails, waterways, picnic sites, swimming beaches, overlooks etc.</li> <li>• Use engine mufflers, vegetation, or other sound barriers to minimize operation noise affecting park resources and values.</li> <li>• Erect fences and post warning signs as appropriate to restrict public access to the well site.</li> </ul>

## **INFORMATION REQUIREMENTS FOR NPS TO PROCESS §9.32(e) APPLICATIONS**

The NPS requests the following information from operators proposing directional drilling operations under the regulatory provisions at Title 36, Code of Federal Regulations, Section 9.32(e). This section of the NPS nonfederal oil and gas regulations applies to directional drilling of an oil and gas well into a park unit from a surface location outside of a park boundary.

### **I. CONTACT INFORMATION**

This information informs the NPS of who is responsible for the prospective operation, and provides a list of key contacts in case there is an accident that threatens park resources and values or visitor health and safety.

- A. The application should include the name, address and telephone number of the following:
1. Lessee,
  2. Operator,
  3. Field representative during drilling and production operations,
  4. Emergency contact person, and
  5. Surface owner at the drilling site.

### **II. LEGAL OWNERSHIP INFORMATION**

The NPS must have documentation from a prospective oil and gas operator that demonstrates a right to exercise nonfederal oil and gas rights located within a park unit. If an operator does not possess such rights, the United States owes no legal obligation to that operator.

- A. Copy of the legal instrument demonstrating ownership of or a legal right to oil and gas beneath the park. Examples include:
  - 1. Deed,
  - 2. Lease document,
  - 3. Farmout agreement,
  - 4. Designation of operator, or
  - 5. Designation of agent.

### **III. MAPS AND PLATS**

The purpose of this section is to graphically show the operator's mineral tract(s) and the proposed surface location in relation to the park, and to illustrate the local topography so that the NPS can assess potential threats to park resources and values.

- A. Scaled map(s) and plat(s) showing the following information in relation to the park boundary:
  - 1. Well name,
  - 2. Proposed surface location of the drilling / production operation,
  - 3. Proposed bottom hole location of the well,
  - 4. Boundary of the oil and gas lease,
  - 5. Boundary of the drilling unit,
  - 6. Area topography,
  - 7. Location of surface waters and drainage patterns,
  - 8. Gathering line(s) and pipeline(s) for intended use (designate existing or new),
  - 9. Distance from well and production facility to the park boundary.

Note: Applicants can often show this information on a survey plat, topographic map, or aerial photograph.

### **IV. PROJECT DESCRIPTION**

The information in this section will be used by the NPS to determine whether the proposed operation complies with the regulatory requirements of § 9.32(e).

- A. The project description needs to address the following:
  - 1. Anticipated operation timeline (e.g., estimated dates for site construction, well spud, drilling, completion, etc.),
  - 2. Drilling program,
  - 3. Mud program including information on containment and disposal of drilling mud (liquids and solids) and drill cuttings,

4. Casing and cementing program, and
5. Plugging program in the event the well is a dry hole.

Note: Copies of service company proposals will likely fulfill the information under this item. If particular information is not addressed in such proposals, it can be added as a supplement.

## **V. STATE PERMITS**

Include a copy of state drilling permit including state requirements for protection of usable-quality ground water.

## **VI. INFORMATION TO FACILITATE NPS NEPA COMPLIANCE**

The NPS will use the following information to fulfill its NEPA compliance responsibilities.

### **A. Federal, State, and Local Permits.**

Provide copies of other federal, state or local permits (if applicable) including supporting information if available. Examples of other permits and requirements may include:

1. U.S. Army Corps of Engineers nationwide or individual permit for wetlands “dredge and fill” under § 404 of the Clean Water Act,
2. Federal Emergency Management Agency certificate for operations in floodplains, and
3. EPA Spill Prevention Control and Countermeasure Plan for drilling, workover, and production operations.

At the operator’s discretion, the operator can provide other available information to assist the NPS in assessing impacts on park resources and values.

### **B. Mitigation Measures.**

List proposed proactive mitigation measures that the operator will take to protect the park from potential adverse effects of the operations based on project scoping / site visit and discussion with NPS staff.





## **CHAPTER 6**

# **EXISTING OIL AND GAS OPERATIONS**

This chapter includes the following information:

- NPS permitting process checklist for existing oil and gas operations that have lost their exempt status,
- Definition of an existing operation,
- Loss of “existing operations” status,
- Suspension of existing operations, and
- Plugging and reclamation of existing operations.

### **NPS PERMITTING PROCESS CHECKLIST FOR EXISTING OPERATIONS THAT HAVE LOST THEIR EXEMPT STATUS**

The following checklist outlines the permitting process for existing operations that have lost their exempt status. The items on the checklist are described throughout this handbook. This checklist can be used by an oil and gas operator to make sure that all of the required steps have been completed to prepare and have a plan of operations approved by the National Park Service.

- ☐ Operator contacts park superintendent that an oil and gas operation has lost its exempt status. In some cases, the NPS may notify the operator if the NPS determines that an operations has lost its exempt status.
- ☐ Operator meets with park staff to discuss 36 CFR 9B requirements (for more information, see CH 1).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Operator requests temporary access permit to gather information needed to complete the plan of operations. This would be necessary if the surveys cover an area larger than the existing operations area. The NPS must be notified of the techniques proposed for the surveys (for more information, see CH 2).
- ☐ Operator conducts necessary surveys, which may include natural and cultural surveys. The types of surveys would be determined during scoping with park staff (for more information, see CH 2).
- ☐ Operator prepares plan of operations and submits draft plan to the National Park Service (for more information, see CH 4 for drilling and production or CH 7 for well plugging and surface reclamation).

The Plan of Operations for drilling and production operations must include the following sections:

- ☐ I. Lease and Ownership Information
- ☐ II. Maps and Plats
- ☐ III. Description of Well Geology

## CHAPTER 6 – EXISTING OIL AND GAS OPERATIONS

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- ☐ IV. Timeline for Operations
- ☐ V. Description of Operations
- ☐ VI. Spill Control Plan
- ☐ VII. Reclamation Plan
- ☐ VIII. Affidavits and Statements
- ☐ IX. Other Applicable Permits
- ☐ X. Background Environmental Information
- ☐ XI. Relationship to Park Planning Documents

The plan of operations for well plugging and surface reclamation must include the following sections:

- ☐ I. Lease and Ownership Information
  - ☐ II. Documentation of Area of Operations
  - ☐ III. Geologic Information
  - ☐ IV. Timeline for Operations
  - ☐ V. Description of Well Plugging Operations
  - ☐ VI. Spill Control Plan
  - ☐ VII. Surface Reclamation Plan
  - ☐ VIII. Affidavits and Statements
  - ☐ IX. Other Applicable Permits
  - ☐ X. Background Environmental Information
- ☐ NPS performs a completeness and technical review of the plan of operations (for more information, see CH 2).
  - ☐ Operator revises plan of operations, if necessary (for more information, see CH 2).
  - ☐ Park staff prepares NEPA document (or adopts operator's or consultant prepared NEPA document), incorporates other environmental compliance, and initiates mandated consultations with other agencies (for more information, see CH 2).
  - ☐ Park completes public review process, finalizes decision documents, and notifies the operator that the plan has been approved, conditionally approved, or rejected (for more information, see CH 2).
  - ☐ Operator agrees to conditions of approval (if any), submits applicable state and federal permits, and files performance bond with the NPS (for more information, see CH 10).

### DEFINITION OF AN EXISTING OPERATION

Section 9.33 of the NPS 36 CFR 9B regulations cover existing (grandfathered) operations. An "existing operation" uses federal access and meets one of the following conditions:

- The operation was ongoing under a valid state or federal permit as of January 8, 1979 (effective date of the 9B regulations), and
- The operation was ongoing under a valid state or federal permit when the area became a new park unit, or
- The operation was ongoing under a valid state or federal permit when the area came into the park system by expansion of an existing unit.

A state or federal permit is considered valid if:

- the permit was issued to the current operator on or before January 8, 1979,
- the term of the permit has not expired, and
- the operations have not undergone any change requiring a new permit since January 8, 1979.

In the 9B regulations, “existing operations” may continue without submitting a plan of operations or filing a performance bond or security deposit. These operations are essentially “grandfathered” (36 CFR §9.33).

## **LOSS OF “EXISTING OPERATIONS” STATUS**

An existing operation can lose its exempt status. If this happens, the operator must comply with the 9B regulations. This includes filing a plan of operations with the NPS and submitting a performance bond. Two cases where an “existing operation” would lose its exempt status are:

1. the state or federal permit expires by its own terms, or
2. there is a change in an operation that requires a new state or federal permit.

The following list provides some examples of situations that can cause an operation to lose its exempt status.

- The operation has a change in operator. New operators are often required by states to obtain a new operating permit specific to the acquired property.
- The operator proposes well work that requires state approval. Examples include recompleting a well to a different producing zone (plug backs and deepenings), or plugging and abandonment.
- The operator proposes to use additional federally owned lands or waters. New use of federal land or water in a park unit requires a new permit from the National Park Service. Common examples include enlarging a wellpad to accommodate expanded production facilities or widening a road to improve access to the site.

If an operator loses his/her exempt status, the operator must:

- Notify the park superintendent in writing within 30 days of the nature and location of the operation, and
- Submit a substantially complete proposed plan of operations to the NPS within 60 days.

Chapters 4 and 7 of this handbook covers the plan of information requirements, required operating stipulations, and recommended mitigation measures for drilling and production operations and well plugging and surface reclamation, respectively. These plan of operation information requirements would also apply to operations that have lost their exempt status.

## **SUSPENSION OF EXISTING OPERATIONS**

Existing operations may be exempt from the plan of operations and bonding requirements. If "[a]t any time when [existing] operations which are allowed to continue under §9.33 (a) and (b) pose an immediate threat of significant injury to federally owned or controlled lands or waters, the superintendent shall require the operator to suspend operations immediately until the threat is removed or remedied." (36 CFR §9.33(c))

The superintendent will notify the operator in writing (within 5 days) with the reasons the operation was shut down, and what must be done to restart operations. The operator can appeal the suspension order under 36 CFR §9.49, Appeals.

Examples of an immediate threat of significant injury include, but are not limited to:

- escape of hydrogen sulfide or other toxic or noxious gas,
- vegetation clearing or earth moving outside the area currently approved (by regulation or plan) for operations,
- uncontained or chronic oil, brine, or hazardous material spills,
- well blow-out,
- leaching or release of an environmental contaminant (e.g., contaminated stormwater runoff),
- fire or fire hazard,
- unmaintained oil or brine storage tanks that lack secondary containment such as berming,
- inadequate safeguard for controlling well pressures,
- inadequate safeguards for protecting visitors and wildlife from serious injury, or
- damage to cultural resources.

## **PLUGGING AND RECLAMATION OF EXISTING OPERATIONS**

Existing operations often lose their exempt status from the plan of operations and performance bond requirements because well plugging requires a new state permit. Prior to well plugging, the operator needs to:

1. File a plan of operations covering the well plugging and surface reclamation,
2. Receive NPS approval, and
3. Submit a performance bond.

It is very important for grandfathered operators to understand this aspect of the regulations, both environmentally and financially. The manner in which operations are conducted will directly affect the cost of the surface reclamation. It will also affect the sales price of the property because today's buyers are more aware of environmental liabilities.

Chapter 7 of this handbook covers the plan of information requirements, a guide to NPS well plugging requirements, required operating stipulations, and recommended mitigation measures for well plugging and surface reclamation.

## **CHAPTER 7**

# **WELL PLUGGING AND SURFACE RECLAMATION**

This chapter includes the following information:

- NPS permitting process checklist for well plugging and surface reclamation,
- NPS well plugging guide for nonfederal oil and gas wells,
- Surface reclamation overview,
- Plan of operations information requirements for plugging and reclamation,
- Required operating stipulations,
- Recommended mitigation measures, and
- Pictorial overview of reclamation activities.

### **NPS PERMITTING PROCESS CHECKLIST FOR WELL PLUGGING AND SURFACE RECLAMATION**

The following checklist outlines the permitting process for well plugging and surface reclamation in units of the NPS. The items on the checklist are described throughout this handbook. This checklist can be used by an oil and gas operator to make sure that all of the required steps have been completed to prepare and have a plan of operations approved by the National Park Service.

- ☐ Operator contacts park superintendent of their intent to plug an oil and gas well and reclaim the operations area (for more information, see CH 2).
- ☐ Operator meets with park staff to discuss 36 CFR 9B requirements (for more information, see CH 1 and 2).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Operator requests temporary access permit to gather information needed to complete the plan of operations (for more information, see CH 2).
- ☐ Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area (for more information, see CH 2).
- ☐ Operator prepares plan of operations and submits draft plan to the National Park Service (for more information, see CH 7 for well plugging and surface reclamation).

The plan of operations for well plugging and surface reclamation must include the following sections:

- ☐ I. Lease and Ownership Information
- ☐ II. Documentation of Area of Operations
- ☐ III. Geologic Information
- ☐ IV. Timeline for Operations
- ☐ V. Description of Well Plugging Operations
- ☐ VI. Spill Control Plan
- ☐ VII. Surface Reclamation Plan
- ☐ VIII. Affidavits and Statements

## CHAPTER 7 – WELL PLUGGING AND SURFACE RECLAMATION

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- ☐ IX. Other Applicable Permits
- ☐ X. Background Environmental Information
- ☐ NPS performs a completeness and technical review of the plan of operations (for more information, see CH 2).
- ☐ Operator revises plan of operations, if necessary (for more information, see CH 2).
- ☐ Park staff prepares NEPA document (or adopts operator's or consultant prepared NEPA document), incorporates other environmental compliance, and initiates mandated consultations with other agencies (for more information, see CH 2).
- ☐ Park completes public review process, finalizes decision documents, and notifies the operator that the plan has been approved, conditionally approved, or rejected (for more information, see CH 2).
- ☐ Operator agrees to conditions of approval (if any), submits applicable state and federal permits, and files performance bond with the NPS (for more information, see CH 10).

## NATIONAL PARK SERVICE WELL PLUGGING GUIDE FOR NONFEDERAL OIL AND GAS WELLS

This section is intended to help operators plan the downhole aspects of plugging operations so that they will meet NPS standards. The second part of this section provides examples of how wells might be plugged by NPS standards.

Though this section deals with well plugging, operators should keep in mind that plugging is just the first step in their reclamation responsibilities. Sloppy plugging operations can hinder surface reclamation. Precautions should be taken to prevent oil, brine, chemicals, cement, and other materials from further contaminating the area. The effective use of plastic liners beneath the workover rig, pipe racks, fuel storage, and other equipment should be used as necessary. All fluids and solids returned to the surface from the wellbore should be collected in metal tanks and disposed of at an approved disposal site outside of the park.

The NPS is not responsible for protecting private mineral interests where plugs are set solely to protect nonfederal mineral resources such as oil, gas, coal, potash, etc., the NPS will defer to the state requirements.

For operators that are used to working on federal onshore leases, it is useful to know that the NPS uses the minimum standards of the *Department of Interior's Onshore Oil and Gas Order Number 2, Section III.G., Drilling Abandonment for Plugging Wells in Parks*. The plugging requirements of Onshore Order No. 2 were written specifically for plugging newly drilled wells. However, the same standards may be applied to the permanent abandonment of exhausted producers or service wells.

### WELL PLUGGING GOALS

The NPS goals in plugging a well are:

- to protect the zones of usable water from pollution,
- to prevent escape of oil, gas, or other fluids to the surface or zones of usable quality water, and
- leave the surface in a clean and safe condition that sets the stage for surface reclamation.

The following well plugging objectives have been developed to meet the NPS well plugging goals:

1. Set cement plug(s) to isolate all formations bearing oil, gas, geothermal resources, and other prospectively valuable minerals from zones of usable-quality water.
2. Set cement plug(s) to isolate all formations bearing usable-quality water.
3. Set a cement plug to isolate the surface casing (or intermediate casing) from open hole below the casing shoe.
4. Set a cement plug to seal the well at the surface.
5. Remove surface casing below grade and cap the well.



### GENERAL CEMENTING REQUIREMENTS

The plugging procedure needs to include the following general requirements to meet NPS requirements. When NPS standards differ from state requirements, the operator should use the stricter requirement to meet both state and federal standards.

#### Cement Quality

All cement for plugging shall be an approved API oil well cement without volume extenders and shall be mixed in accordance with API standards. Slurry weights shall be reported on the cementing report. The NPS may require specified cementing compositions be used in special situations; for example, when high temperature, salt section, or highly corrosive sections are present.

#### Cement Volumes

All cement plugs except the surface plug shall have sufficient slurry volume to fill at least 100 feet of hole, plus an additional 10 percent of slurry for each 1,000 feet of depth. No plug, except the surface plug, shall be less than 25 sacks without prior approval. These requirements address the ability to mix and place uncontaminated cement at depth. The cement and workover fluids tend to mix at the lead and tail end of the cement slurry as it is pumped downhole. The clean cement in the middle provides the plug's integrity. An additional washout factor may be applied when plugging openhole sections.

#### Cement Placement

Cement plugs must be placed by the circulation or squeeze method through tubing or drill pipe. The dump bailer method may be used only to place cement caps above a bridge plug or retainer.

#### Plugging Fluid

Each of the intervals between plugs must be filled with mud having sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling.

In the absence of known data, the NPS requires a minimum mud weight of 9.0 pounds per gallon.

#### Casing Removed from the Hole

If any casing is cut and recovered, a cement plug shall be placed to extend at least 50 feet above and below the casing stub.

#### Uncemented Annular Space

Whenever a cement plug is required at a depth where the annular space is not cemented, the uncemented annular section must be cemented by perforating the casing and pumping cement into the annular space. At shallow depths, small diameter pipe can be run in the annular space and cement circulated in place.

### REQUIRED PLUGS

The following sections summarize where cement plugs need to be placed in a well to meet the NPS goals.

**Static Hole and Testing Plugs**

The hole shall be in a static condition while placing any plugs. Where the fluid level will not remain static, the plug that is set shall be tested by either tagging with the working pipe string, or pressuring to a minimum surface pressure of 1,000 pounds per square inch. A successful pressure test will have no more than a 10 per cent drop during a 15-minute period. The pressure test method can only be used in cased hole. The NPS has the option to require testing (by tagging or pressure) of any plug to ensure its integrity.

**Zones of Production**

The NPS requires cement to be placed across the top perforated interval and extend at least 50 feet below the bottom of that perforated interval (except where limited by total depth) and 50 above the top perforations.

Instead of the cement plug, a bridge plug or retainer can be set above the perforations and capped with cement. The bridge plug method can be used if there is no exposed open hole below the perforations. The NPS requires the bridge plug to be placed between 50 and 100 feet above the top perforation and capped with 50 feet of cement. If a bailer is used to place cement on top of the bridge plug, then 35 feet is enough.

As stated above, the NPS will defer to state requirements for plugs set solely to protect nonfederal mineral resources such as oil, gas, coal, potash, etc. The NPS will require that the plug is set to isolate the uppermost producing horizon meets federal standards if the next plug scheduled is to protect the base of the deepest usable quality water zone.

**Zones Containing Liquid or Gas with the Potential to Migrate**

Any zone that contains liquid or gas with the potential to migrate requires a plug extending from at least 50 feet below its bottom to at least 50 feet above its top. This requirement pertains only to abandonment of an open hole section or an uncemented cased hole section where there are no cement plugs scheduled between the zone containing liquid or gas with the potential to migrate and the base of the deepest usable quality water zone.

**Usable-Quality Water Zones**

Plugs must be set to protect the zones of usable-quality water. Often, state agencies make the determination of the deepest usable water zone. In general, a 100-foot cement plug is to be centered at the base of the deepest usable-quality water zone. Whenever a cement plug is the only isolating medium for a zone of usable water quality, the NPS standard is to test that plug as described above. When designing the well plugging procedure, operators should plan for testing of plugs that are the only isolating medium for zones of usable quality water.

**The Surface Casing Shoe**

A plug must be set across the shoe of the surface casing (or intermediate casing shoe as appropriate) to extend a minimum of 50 feet above and below the shoe.

If an inner casing string(s) has been cemented across the shoe of the surface casing, then a minimum 100-foot plug is placed in the inner string with its center at the surface casing shoe depth.

If the inner casing string(s) are not cemented, the operator has several choices. The operator can choose to cut and recover casing so that a plug can be set directly across the surface

casing shoe. The operator can also choose to perforate the casing and circulate cement behind the inner casing string across the surface casing shoe.

If casing is removed, the NPS will require a cement plug to be placed to extend at least 50 feet above and below the casing stub. It may be beneficial for operators to cut the casing at a depth so that one plug could be set to meet requirements for both the casing stub and the exposed casing shoe.

### **The Surface Plug**

The NPS standard is a 50-foot surface plug. The plug is placed in the smallest casing and all annuli that extend to the surface. The top of the plug is placed as close to the eventual casing cutoff point as possible.

### **Surface Cap**

The operator should discuss the surface cap and well marker with the park while they are preparing the plan of operations. In many cases, the park will not want a visible well marker.

In all instances, the casings need to be cut at the base of the cellar or 3 feet below final restored ground level, whichever is deeper. If there will be no surface marker, the well bore then needs to be covered with a metal plate at least ¼ inch thick and welded in place. The operator needs to leave a weep hole in the metal plate.

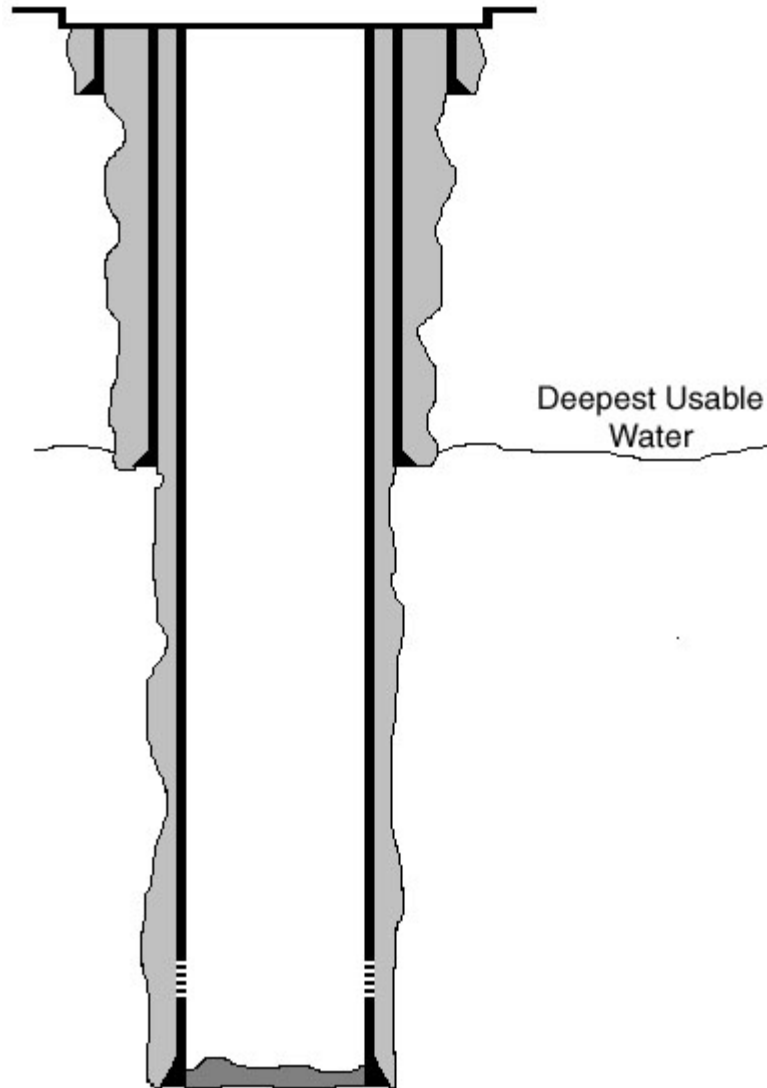
If the park directs the operator to leave a visible well marker, then in place of a metal plate, the operator may use a 4-inch pipe, 10 feet in length, embedded in cement with a section left above the ground. The well location and other well information should be permanently inscribed on the marker. Alternatively, the operator could weld an approved marker to a metal plate as described above.

The operator would then fill in the cellar with material approved in their plan of operations and proceed to surface reclamation.

## PLUGGING EXAMPLES

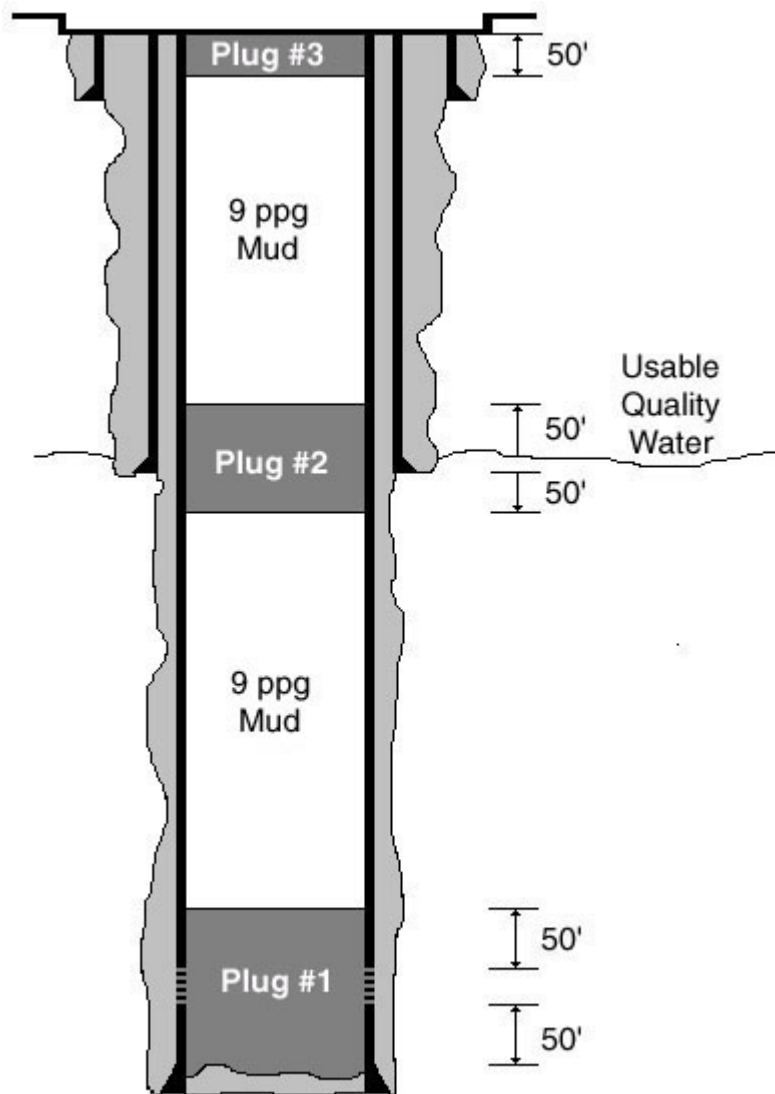
### Well Example No. 1

- Production casing is set through producing zone and cemented to surface.
- Surface casing is set just below the deepest usable quality water.
- Surface casing is cemented to surface.



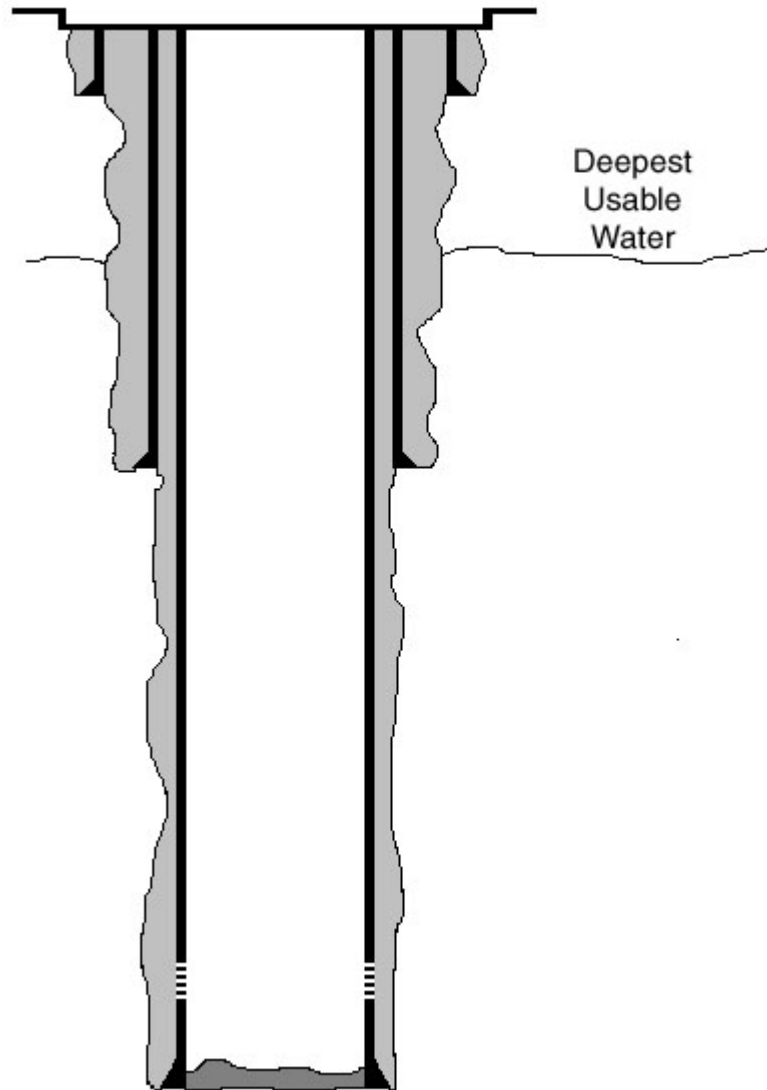
### Plugging for Well Example No. 1

1. **Plug #1** is set to isolate the top producing zone. Since Plug #2 will be set to isolate the base of the deepest usable water zone, then Plug #1 must meet NPS standards. In this example, the plugged back depth is about 50 feet below the bottom perforation, so Plug #1 is set to extend from plugged back depth to at least 50 feet above the top perforation. Had there open producing zones below Plug #1 in this well, the NPS would defer to state requirements for plugging the deeper intervals.
2. **Plug #2** serves two purposes. Since the surface casing is set just below the base of the deepest usable quality water zone, a single plug can be set to isolate the surface casing shoe and the base of the deepest usable water zone. The plug would extend at least 50 feet below the casing shoe to at least 50 feet above the base of the usable water zone.
3. **Plug #3** is the surface plug. The NPS standard is a 50-foot surface plug. Since the annular spaces are all cemented to surface, the surface plug only needs to be set inside the production casing and extend at least 50 feet below the anticipated casing removal point.



**Well Example No. 2**

- Production casing is set through producing zone and cemented to surface.
- Surface casing is set well below the deepest usable quality water.
- Surface casing is cemented to surface.

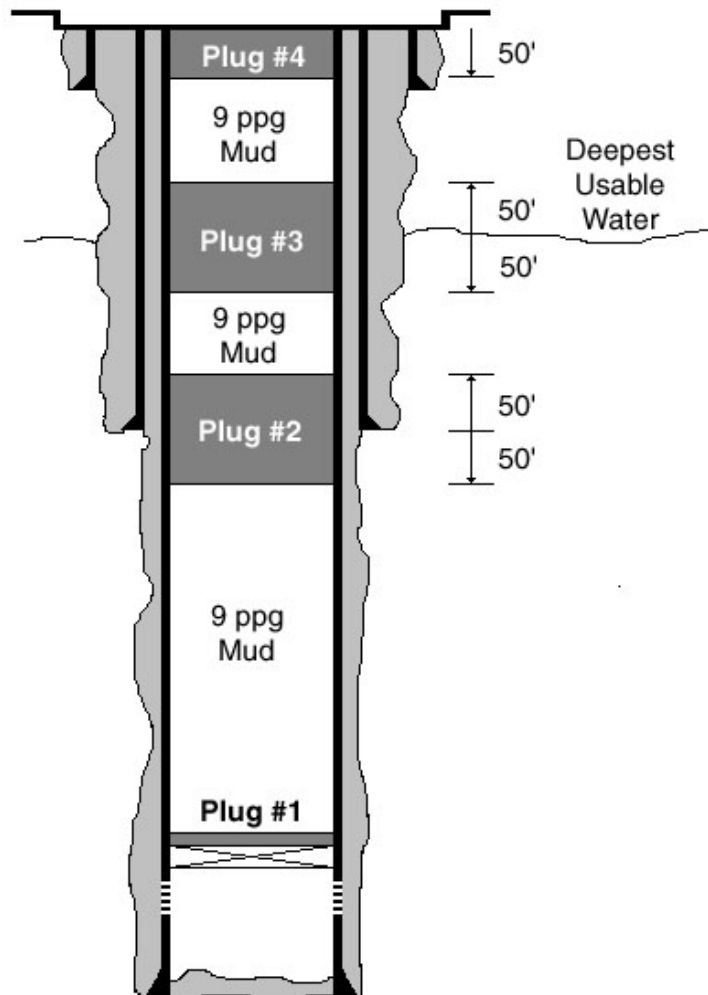


## Plugging for Well Example No. 2

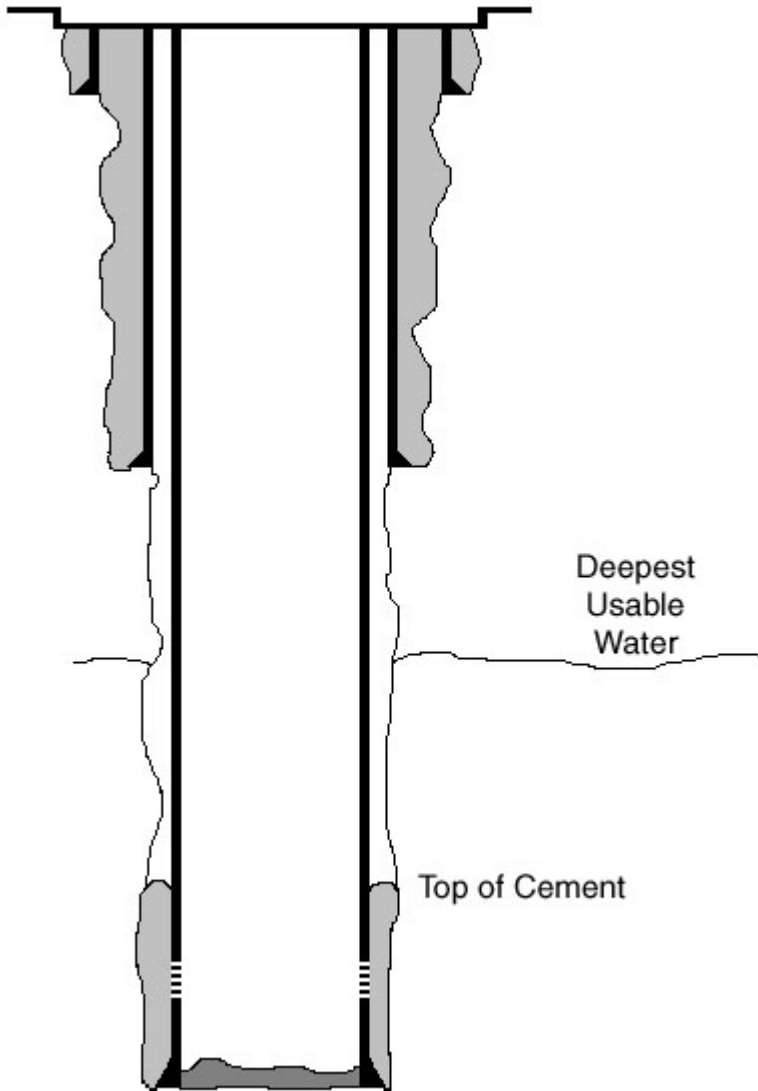
1. **Plug #1** is set to isolate the top producing zone. Since the next plug scheduled is not set to protect the base of the deepest usable quality water zone, the NPS defers to a state plugging requirement. In this example, a cast iron bridge plug was set just above the perforated interval and capped with 20 feet of cement as allowed under State of Texas regulations.

Note: The bridge plug method would have met the NPS standard if it were set between 50 and 100 feet above the top perforation and capped with 50 feet of cement (35 feet if cement is placed with a dump bailer).

2. **Plug #2** is set to isolate the surface casing shoe and the base of the deepest usable water zone. The plug would extend at least 50 feet below and 50 feet above the casing shoe.
3. **Plug #3** is set to isolate the base of the deepest usable quality water zone. The plug would extend at least 50 feet below and 50 feet above the base of the deepest usable quality water zone.
4. **Plug #4** is the surface plug. The NPS standard is a 50-foot surface plug. Since the annular spaces are all cemented to surface, the surface plug only needs to be set inside the production casing and extend at least 50 feet below the anticipated casing removal point.



### Well Example No. 3



- Production casing is set through producing zone but not cemented to surface.
- Surface casing is set well above the deepest usable quality water.
- Surface casing is cemented to surface.

Since the production casing is not cemented across the deepest usable water zone or the surface casing shoe, cement will need to be placed behind the production casing to achieve zone isolation.

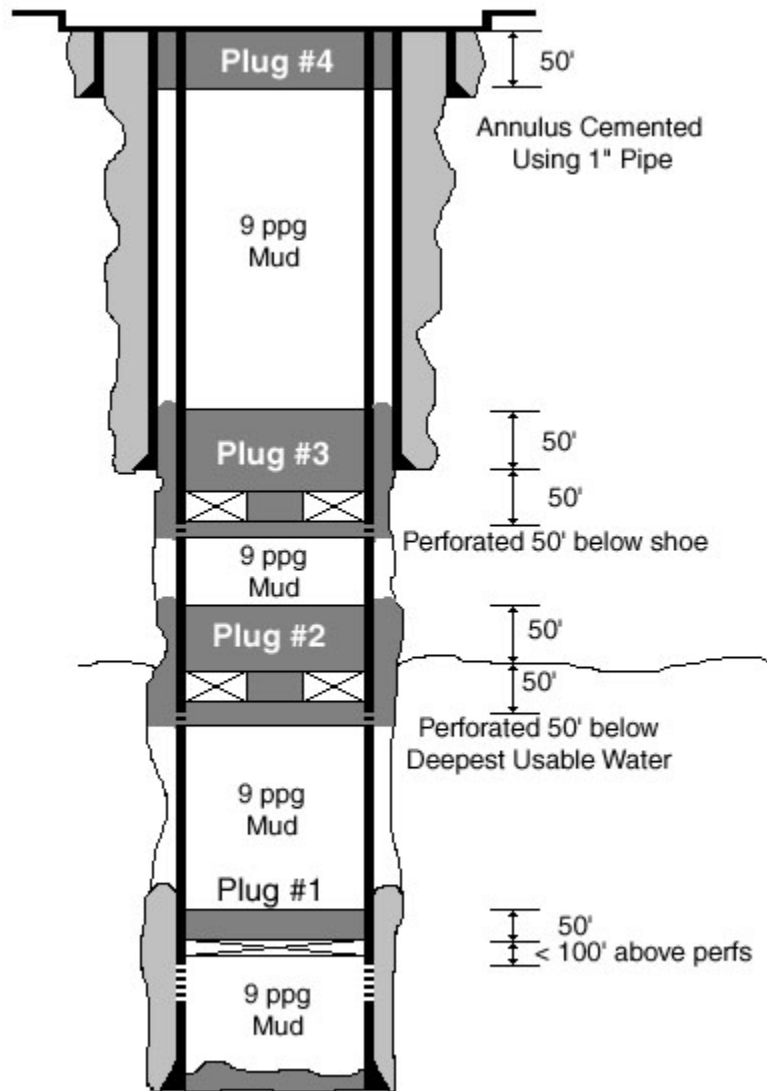
The operator could take three approaches:

1. The production casing could be perforated at appropriate depths, and the cement circulated behind the pipe. This option is demonstrated in Plugging Well Example No. 3A.
2. The production casing could be removed, thus exposing the intervals that require placement of cement plugs. This option is demonstrated in Plugging Well Example No. 3B.
3. The operator could also use a combination of the first two options.



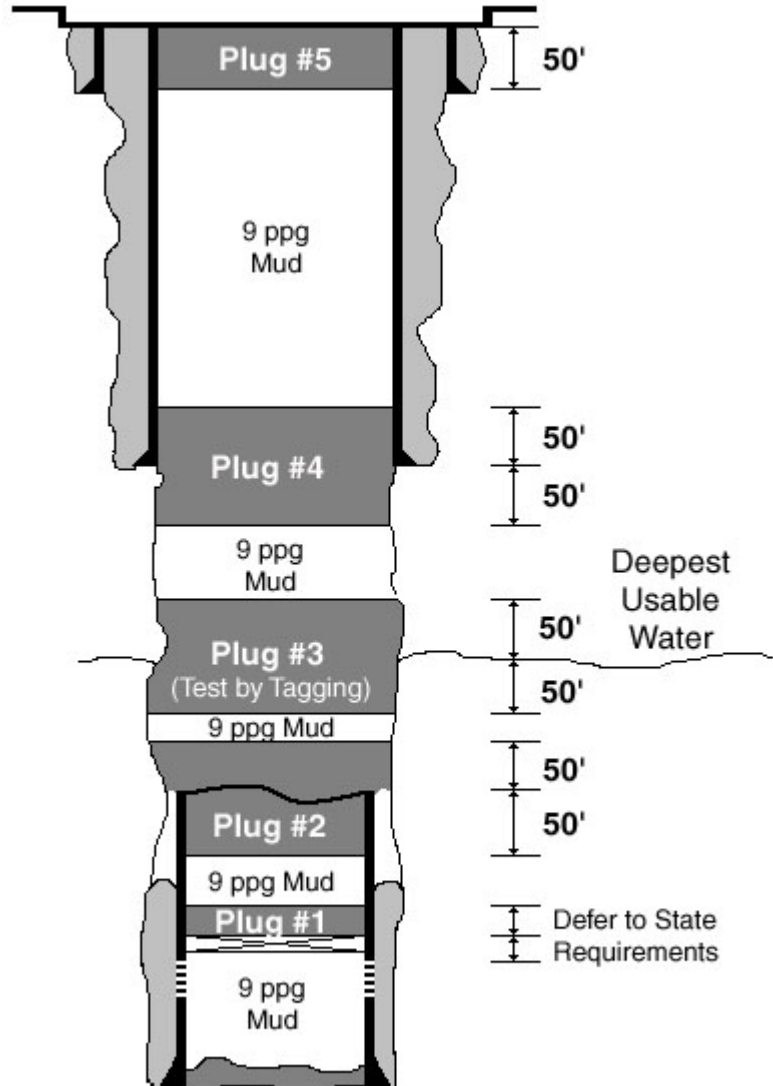
**Plugging for Well Example No. 3A (Production Casing Left in Place)**

1. **Plug #1** is set to isolate the top producing zone. Since the next plug scheduled is set to protect the base of the deepest usable quality water zone, it must meet NPS standards. In this example, a cast iron bridge plug was set between 50 and 100 feet above the top perforation and capped with 50 feet of cement. If the operator elected to place cement on top of the bridge plug using a bailer, then 35 feet of cement would have been sufficient.
2. **Plug #2** is set to isolate the base of the deepest usable quality water zone. The operator will need to use an approved method to place cement behind the production casing across the base of the deepest usable quality water zone. In this example, cement is placed by perforating the production casing and cementing through a retainer. The operator could also use a retrievable cementing tool in place of the retainer. The perforations would be placed at least 50 feet below the base of the zone. The cement volume and pumping schedule is then designed to place cement from 50 feet below to 50 feet above the base of the usable water zone both inside and outside the production casing. The NPS would require testing of this plug since it is the only isolating medium for a usable quality water zone.
3. **Plug #3** is set to isolate the surface casing shoe. Again, the annular space is not cement so the operator perforates the casing and places cement in the same manner as Plug #2.
4. **Plug #4** is the surface plug. The NPS standard is a 50-foot surface plug. The annular space between the production and surface casing must also be cemented. In this example, the operator elected to cement the annulus by running 1" pipe (at least 50' below the eventual casing removal point) and circulating cement in place.



### Plugging for Well Example No. 3B (Production Casing Removed)

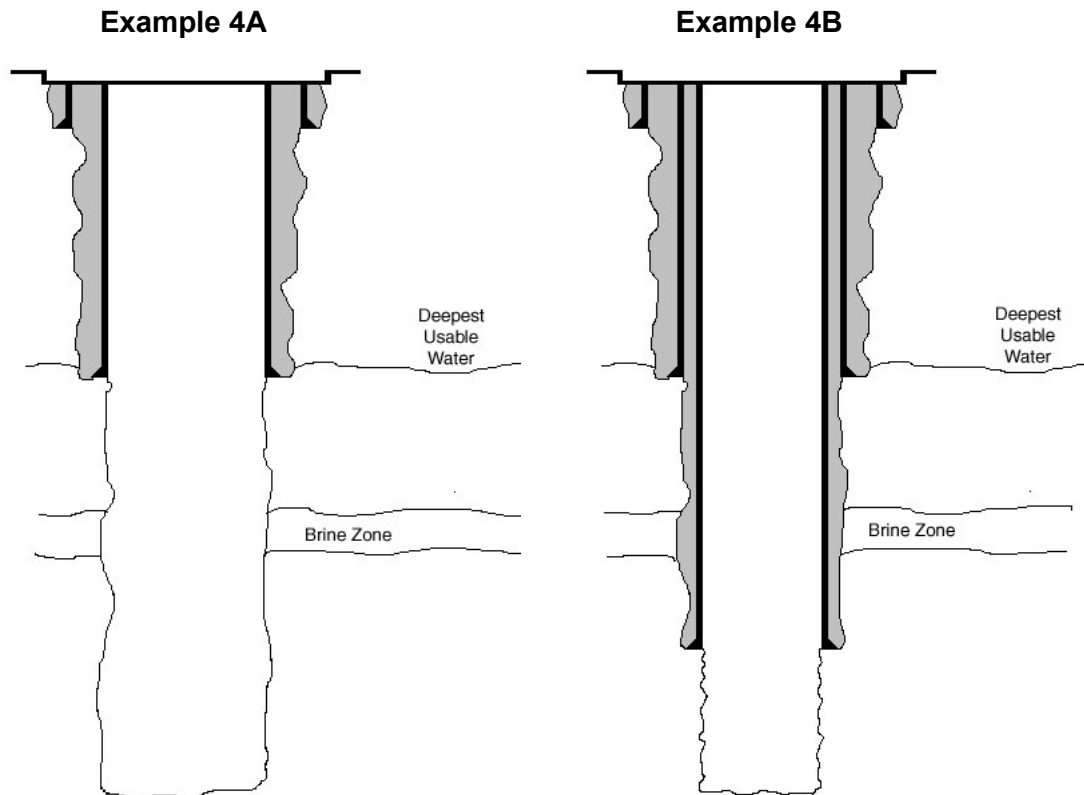
1. **Plug #1** is set to isolate the top producing zone. Since the next plug scheduled is not set to protect the base of the deepest usable quality water zone, the NPS defers to a state plugging requirement. In this example, the operator elected to cut and recover the production casing at its freepoint, which was well below the deepest usable quality water zone.
2. **Plug #2** is set to isolate the stub where the production casing was cut and removed. The NPS standard is to place a cement plug extending from 50 feet below to 50 feet above the casing stub.
3. **Plug #3** is set to isolate the base of the deepest usable quality water zone. The plug would extend from at least 50 feet below to at least 50 feet above the base of the deepest usable quality water zone. The operator could have cut the casing closer to the deepest usable quality water zone and combine Plug #2 and Plug #3. Since this Plug #3 is the only isolating medium for a usable quality water zone, the operator must test the plug by tagging it with the drill string. Pressure test of the plug is not appropriate since the plug is set in an open hole.
4. **Plug #4** is set to isolate the surface casing shoe. The plug would extend from at least 50 feet below to at least 50 feet above the casing shoe.
5. **Plug #5** is the surface plug. The NPS standard is a 50-foot surface plug. Since the production casing was removed, there are no remaining uncemented annular spaces. The surface plug only needs to be set inside the surface casing and extend at least 50 feet below the anticipated casing removal point.



### Well Example No. 4 (Newly Drilled Dry Holes)

The two wellbore diagrams below show common examples of newly drilled dry holes. The first well has surface casing set just below the deepest usable quality water zone and cemented to surface. A permeable brine zone was encountered while drilling to the deeper hydrocarbon target zones.

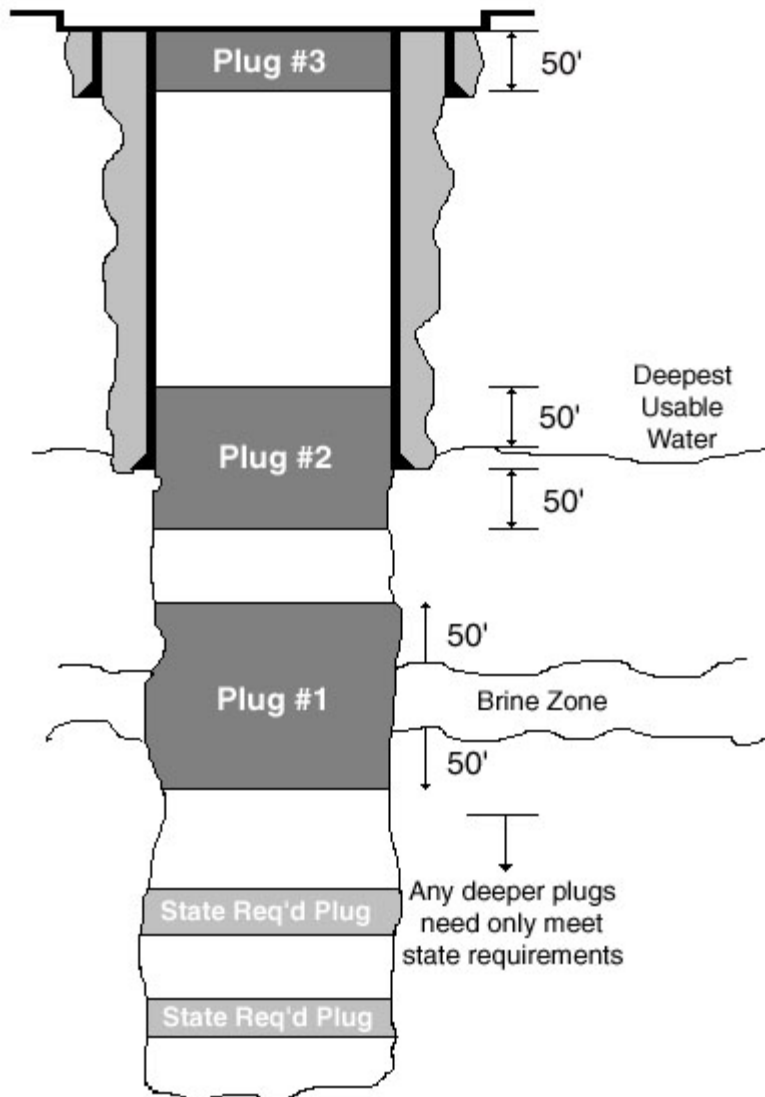
The second well is the same, but with a string of intermediate casing, which is also cemented to surface. The brine zone is isolated behind the intermediate string.



### Plugging for Well Examples No. 4A (Newly Drilled Dry Hole)

**Plug #1** is required by the NPS to isolate a “zone containing liquid or gas with the potential to migrate” in an openhole section where there are no cement plugs scheduled between it and the base of the deepest usable quality water zone. The plug extends from at least 50 feet below the brine zone’s bottom to at least 50 feet above its top.

The NPS would defer to state requirements for any plugs set deeper than Plug #1. If the state had required a cement plug somewhere between Plug #1 and Plug #2, then the NPS could waive the requirement for Plug #1. The NPS would not require Plug #1 provided the state required plug met the general NPS requirements for cement quality, quantity, and placement technique.



**Plug #2** is set to isolate the surface casing shoe and also serves to isolate the deepest usable quality water zone. The plug is placed to extend from at least 50 feet below the casing shoe to at least 50 feet above the base of the deepest usable quality water zone.

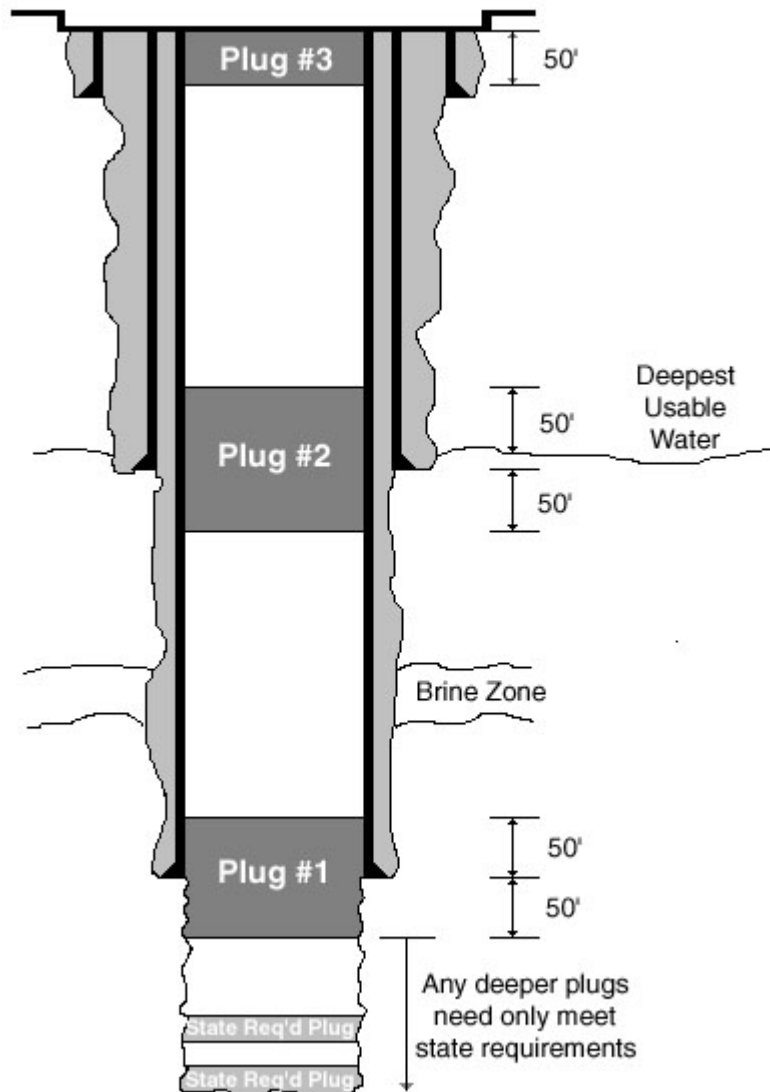
**Plug #3** is the surface plug. The NPS standard is a 50-foot surface plug. The surface plug only needs to be set inside the surface casing and extend at least 50 feet below the anticipated casing removal point.

## Plugging for Well Examples No. 4B (Newly Drilled Dry Hole with Intermediate Casing)

**Plug #1** is set to isolate the intermediate casing shoe. It is set to extend from at least 50 feet below to at least 50 feet above the casing shoe.

Since Plug #1 is between the base of the deepest usable quality water zone and any deeper plugs, the NPS would defer to state requirements for any plugs set below Plug #1.

The brine zone does not require a cement plug to meet NPS standards since it is isolated behind a cemented section of casing.



**Plug #2**, as in the previous example, is set to isolate the surface casing shoe and also serves to isolate the deepest usable quality water zone. The plug is placed to extend from at least 50 feet below the casing shoe to at least 50 feet above the base of the deepest usable quality water zone.

**Plug #3** is the surface plug. The NPS standard is a 50-foot surface plug. Since the all annuli have been cemented to surface, the surface plug only needs to be set inside the intermediate casing and extend at least 50 feet below the anticipated casing removal point.

## **SURFACE RECLAMATION**

In NPS terms for oil and gas operations, reclamation means returning lands and waters that were disturbed by operations to a condition that suits the park's goals. Developing a good reclamation program for the plan of operations then becomes a two-step process:

1. Identify reclamation goals that are clear and measurable, and
2. Develop a step-by-step process to achieve the goals.

In most cases, reclamation will result in returning the disturbed areas to the natural conditions and processes that existed before the operations began. In some instances, however, the NPS may designate the disturbed area for a different use than it had prior to operations. For example, the NPS may want to keep a road and wellpad to provide for visitor use or administrative access. The reclamation program would be much different for these two situations. Also, reclamation requirements under the regulations are different depending on whether or not the operations are on federal property.

The operator cannot design a surface reclamation program until the goals of reclamation are clearly defined. The regulations provide the basis for Step 1 by setting the minimum standards or goals for reclamation (36 CFR §9.39). For Step 2, park resource managers will be an excellent source of information for specific reclamation strategies and methods that have been used successfully in their parks. Operators too may have firsthand experience with reclamation in similar environments to ones in the subject plan of operations.

### **WHEN SURFACE RECLAMATION MUST BE STARTED**

Section 9.39(a) requires that reclamation begin according to timeframes specified in an operator's plan of operations. If the plan of operations does not give a timeframe, then reclamation must begin within six (6) months from the time operations ended.

### **DIFFERENCES IN RECLAMATION REQUIREMENTS – FEDERAL AND PRIVATE SURFACE ESTATE**

In the regulations, operations on federal lands have higher reclamation standards than operations on private lands. The majority of existing operations are located on federal surface estate, so most operators must meet the higher reclamation standard.

**For federal lands**, the main standard is for operators to “return the area to natural conditions and processes.” (36 CFR §9.39(a)(2)) The regulations then provide seven steps that need to be completed at a minimum to satisfy the standard. These are:

1. Remove all above ground structures, equipment, and roads no longer needed for future operations.
2. Remove all other man-made debris that resulted from operations.
3. Remove or neutralize contaminating substances.
4. Plug and abandon all nonproductive wells and fill any excavations.
5. Restore the natural contour of the land.
6. Place the natural soils needed for vegetation.
7. Reestablish native vegetative communities.

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These steps then provide an outline for an operator's reclamation program. For the reclamation section in the plan of operations, the operator can describe the methods and equipment that will be used to accomplish each of the seven steps.

For Step 3, the operator is responsible for removing soils or any other material that becomes contaminated. If there is reason to suspect soils or groundwater have been contaminated, the operator will likely need to collect and test samples to verify that contaminating substances have been removed or neutralized. Neutralization of contamination means that contaminant concentrations will be reduced in soils (or groundwater) to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands and waters, provides for the safe movement of native wildlife, and which does not jeopardize visitor health and safety.

For Step 5, wetland areas directly and indirectly affected by operations must be returned to their preexisting elevations, and soil, hydrology, and native vegetation communities must be restored as soon as practicable after completion of the operation. Reclamation requirements in wetlands are very precise with regard to the position of the land surface with respect to the water table. This, more than anything else dictates the resulting plant communities that will be reestablished in the restored wetland. For more information, refer to the Best Management Practices listed in Chapter 2 of this handbook (NPS Procedures Manual 77-1, Appendix 2).

For Step 7, the reestablishment of native vegetative communities should include specific measures (e.g., percent vegetative ground cover) and a schedule of progress monitoring.

Finally, the regulations state that reclamation is unacceptable (for federal surface) unless it provides:

- safe use of the area by wildlife and park visitors,
- plant growth natural to the area, and
- normal surface and subsurface water flow (36 CFR § 9.39(b)).

**For private surface estate**, the regulations provide two standards (36 CFR § 9.39(a)(1)). The operator shall, at a minimum:

1. Remove or neutralize any contaminating substances (36 CFR § 9.39(a)(1)(i)), and
2. Rehabilitate the area to a condition that would not constitute a nuisance or would not adversely affect, injure, or damage federally owned or controlled lands or waters (36 CFR § 9.39(a)(1)(ii)).

The first standard is the same as described above for reclamation on federal surface estate.

The second standard uses the terms "nuisance" and "adversely affect, injure, or damage". Important factors that an operator needs to consider when designing a reclamation program that satisfies this standard would include, but are not limited to:

- Proper plug and abandonment of wells,
- Prevention of erosion and downslope sedimentation on or towards federal property,
- Restoration of the natural surface drainage pattern,
- Maintenance of water quality,
- Prevention of influx of plant species not native to the area,
- Protection of wildlife, and

- Protection of public safety.

The second standard includes a specific requirement to remove all “above ground structures and equipment” no longer needed for future operations. Roads and wellpads are structures that the NPS would probably require the above ground structures and equipment to be removed unless the surface owner expressly wanted them to stay.

## **PLAN OF OPERATIONS INFORMATION REQUIREMENTS**

This list of requirements is presented to assist National Park Service personnel and nonfederal oil and gas operators in defining specific information that should be included in a proposed plan of operations for permanent well plugging and surface reclamation. These requirements are based on the regulatory provisions under 36 CFR §9.36. This information list can also be used by the NPS to determine if a proposed plan of operations is complete and sufficiently detailed to merit “official acceptance” for review and analysis in accordance with the regulations at 36 CFR §9.36(c).

A plan of operations may not need to address all of the information requirements presented in this list. The operator and NPS staff will narrow the list during project scoping. In some instances, the NPS may require additional information not specifically listed here so that it may effectively analyze the proposed operation. Such additional information also would be identified during project scoping.

### **I. LEASE AND OWNERSHIP INFORMATION**

The purpose of this section is to identify the “operator,” to document the operator’s right to conduct oil and gas activities relative to the nonfederal mineral estate, and to identify primary company contacts for planning, field operations, and emergencies. The operator submits the proposed plan of operations, tenders the performance bond, and is the responsible party for compliance with the approved plan of operations.

#### **A. Name and address of:**

1. Surface owner (if other than the NPS), and
2. Lessor (mineral owner).

#### **B. Name, address, and telephone number of:**

1. Operator,
2. Lessee (if different than operator),
3. Person accountable for operations,
4. Field representative, and
5. Contact person in case of spill, emergency, etc.

#### **C. Copy of the instrument(s) demonstrating the legal responsibility for well plugging and reclamation. Examples include:**

1. Deed or affidavit of ownership,
2. Lease document,



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3. Assignment of Rights,
4. Designation of operator,
5. Designation of agent, or
6. State operating permit or equivalent documentation from the state agency responsible for regulating oil and gas activities.

### II. DOCUMENTATION OF AREA OF OPERATIONS

The purpose of this section is to graphically show the operator's mineral tracts and the area of operations. The area of operations includes present and past surface disturbance associated with the operations, including wells, facilities, and access roads. It is very important to clearly and accurately define the area of operations. The operations plat provides the basis for defining the operator's area of responsibility for reclamation.

- A. **Tract/Lease Boundary Map.** Provide map(s) showing the boundary of the mineral tract(s) or leases used to demonstrate the right to operate in Section I., Paragraph C. The map(s) should be on the appropriate 1:24,000 scale USGS quadrangle(s) (7.5 minute series) or equivalent and identify the following:
  1. NPS park unit boundary, and
  2. Each mineral tract/lease cross-referenced to the "right to operate" information provided in Section I. C.
- B. **Location Map.** Submit a scaled map showing the location of existing operations. USGS quadrangle(s) should be used as base map(s). Show the following (as applicable):
  1. Existing access road(s) to be reclaimed,
  2. Disturbed areas associated with well(s) and/or facilities locations, and
  3. Location of all existing flowlines and pipelines in the area of operations.
- C. **Area of Operations.** Define the area of operations using maps, plats, and photographs (supplement with discussion if necessary). Show and/or describe the following (as applicable):
  1. Access road dimensions,
  2. Plat of disturbed areas associated with wells and other surface facilities, pad dimensions (including all excavations for ditches, sumps, pits, etc. on and around the sites), and
  3. Supplement plats with an inventory of existing surface equipment and photographs documenting existing conditions.

### III. GEOLOGIC INFORMATION

The purpose of this section is to provide the geological information needed to determine setting depths of cement plugs. The operator needs to provide the following information to help the NPS determine a) that all usable quality freshwater zones are protected, b) that anticipated geological conditions are planned for with regard to well control, and c) anticipated well plugging requirements.

- A. Total depth of well(s),
- B. Depths of producing zones,

- C. Depth to which freshwater must be protected (i.e., depths of known usable quality freshwater zones),
- D. Depths of all known brine zones, and other minerals such as coal or oil shale,
- E. Depths of zones with abnormally high or low pressures, or other geological hazards, and
- F. A brief discussion of any drilling or production practices in the area that are used to account for geologic conditions (e.g. heavy muds used for high pressures, oil or saltwater muds used to drill expanding clays or shales, unusual casing/cementing programs, hydrogen sulfide safety plans, etc.).

#### **IV. TIMELINE FOR OPERATIONS**

The purpose of this section is assist the NPS in scheduling plugging operations to minimize or avoid conflicts with park operations and visitor use, and impacts on park resources. Any alteration of normal operations due to seasonal timing considerations to protect natural resources or visitor uses should also be noted in this section.

- A. Estimated time to mobilize, plug well, and demobilize,
- B. Estimated date when reclamation will begin (Note: Reclamation must begin as soon as possible after completion of approved operations, but no later than 6 months thereafter unless specifically approved by the regional director), and
- C. Estimated time to complete reclamation.

#### **V. DESCRIPTION OF WELL PLUGGING OPERATIONS**

The description of plugging operations should provide enough detail on the proposed methods, sequence, and equipment to demonstrate that the plugging design complies with NPS plugging procedures covered in this chapter of the handbook. Also, demonstrate that operations will not further degrade the area of operations or surrounding area.

Provide a description of the proposed methods, sequence, and equipment for the topics listed in this section. Describe the specific actions that the operator will implement to minimize or eliminate adverse impacts on park resources and visitor related values. Table 7.2 includes a list of mitigation measures to protect these resources and values.

NOTE: Operators cannot use sources of water inside the park without written permission of the regional director. The regional director can only approve a plan of operations that uses a source of water from inside the park if one of two conditions exist: 1) the operator owns a superior water right, or 2) use of the water does not damage park resources (36 CFR §9.35).

- A. **Well Information.** Detail existing wellbore information including:
  - 1. Total depth and plugged back depth,
  - 2. All casing sizes, grades, weights, and setting depths,
  - 3. Casing cementing history including calculated or measured tops of cement behind casing strings, and
  - 4. Downhole production equipment.

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- B. **Access.** Describe actions needed to clear or improve the access route and operation site to enable plugging and surface reclamation.
- C. **Well Plugging Design**
1. Types of plugs and setting depths,
  2. Casing removal, perforation depths, and cement placement technique,
  3. Type and amount of cement required,
  4. Plugging fluid properties, and
- Note: each of the intervals between plugs must be filled with mud having sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling. In the absence of know data, the NPS requires a minimum mud weight of 9.0 pounds per gallon.
5. Type of abandoned hole marker.
- D. **Well Plugging Considerations**
1. Considerations for well control (i.e., well blowdown and/or fluid loading, blowout prevention equipment, etc.), and
  2. Considerations for preventing oil, brine, chemicals, and other materials from reaching the ground (i.e., use of plastic liners beneath the plugging rig, pipe racks, and other equipment as necessary; collection of all fluids and solids returned to the surface from the wellbore in metal tanks; waste disposal outside park, etc.) and surrounding area (stormwater management).
- E. Identify potential threats to public health and safety from conduct of the proposed operations and provide a discussion of all measures to remove or minimize these threats.

## VI. SPILL CONTROL PLAN

The requirements for a Contaminating or Toxic Substance Spill Control Plan (Spill Control Plan) are not specifically found in the 9B regulations. The NPS combined informational requirements and operating standards from the 9B regulations to develop a format for a Spill Control Plan. See *Chapter 11 – Spill Control Plan* for organization and content of the Spill Control Plan.

## VII. SURFACE RECLAMATION PLAN

The reclamation plan will describe the actions needed to meet the general regulatory reclamation standards as well as site-specific reclamation goals (36 CFR §9.39). The procedures of the reclamation plan then will be based on the disturbance anticipated from the proposed operations (as described in Section V. A. E.), and reclamation expectations of the NPS as identified during project scoping. The operator should organize the reclamation plan by the following sections.

### A. Reclamation Goals.

1. Summarize the site-specific reclamation goals developed during project scoping. Site-specific goals might include a desired percent of vegetative ground cover as well as the type of plants, soil stabilization, surface drainage characteristics, etc., and

2. State the timeframes for reclamation. When will reclamation activities begin? How long will reclamation activities last? What is the schedule for monitoring the results of the reclamation effort?

**B. Reclamation Procedures.** The regulations provide seven steps that need to be completed to satisfy reclamation standards for operations on federal surface.<sup>1</sup> In addition to well plugging, the following six steps may be used as an outline for developing the plan's surface reclamation procedures. The operator can describe the methods and equipment that will be used to accomplish each of these steps.

1. Remove all above ground structures, equipment, roads (and pad material) no longer needed for future operations.
2. Remove all other man-made debris that resulted from operations.
3. Remove or neutralize contaminating substances. For this step, the operator is responsible for removing soils or any other material that becomes contaminated. If there is reason to suspect soils or groundwater have been contaminated, the operator will likely need to collect and test samples<sup>2</sup> to verify that contaminating substances have been removed or neutralized. Neutralization or removal of contamination means that contaminant concentrations will be reduced in soils (or groundwater) to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands and waters, provides for the safe movement of native wildlife, and which does not jeopardize visitor health and safety.
4. Restore the natural contour of the land.
5. Place and prepare the natural soils needed for vegetation.
6. Reestablish native vegetative communities. In addition to the revegetation procedure, this section should include steps for monitoring progress of the reclamation effort.

**C. Reclamation Cost Estimate.** The cost of reclamation in part determines the amount of the performance bond (36 CFR §9.48(d)(1)). Provide an estimate of costs for a third party to complete the reclamation procedures in Item B above. At a minimum, provide enough detail to support subtotals for each of the following subcategories:

1. Well Plugging,
2. Removal of structures, equipment, roads, pads, debris, etc. (Items B. 1 and 2 above),
3. Removal or neutralization of contaminating substances (Item B. 3 above) including soil and water sampling and testing, soil and water remediation, disposal of contaminated soils or water, etc.,
4. Site and soil preparation (Items B. 4 and 5 above), and
5. Vegetation and monitoring (Item B. 6 above).

The NPS will verify and use the cost estimates to set the reclamation portion of the performance bond. The subtotals may be used to determine amounts by which to reduce the operator's performance bond if reclamation is to be performed in phases.

If the operator chooses not to provide the cost estimates for reclamation, the performance bond may be set at the maximum amount allowed by regulation, which is \$200,000 per operator per park unit (36 CFR §9.48(d)(3)). If the operator already holds a \$200,000 bond for other

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<sup>1</sup> For operations on private surface estate, see Chapter 5, page 7-18 of this handbook

<sup>2</sup> See Appendix D – Guideline for the Detection and Quantification of Contamination at Oil and Gas Operations

## **CHAPTER 7 – WELL PLUGGING AND SURFACE RECLAMATION**

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operations in the same park, it is unnecessary for the operator to provide the cost estimate information required by this section.

### **VIII. AFFIDAVITS AND STATEMENTS**

- A. Include an “Affidavit of Compliance” signed by an authorized official of the company as required by regulations at 36 CFR §9.36(a)(15). The affidavit should state that the proposed operations are in compliance with all applicable Federal, state and local laws and regulations.
- B. Include a statement that the operator is fully accountable for all contractor and subcontractor compliance with the requirements of the approved plan of operations. This statement serves to clarify the operator’s responsibility under the regulations at 36 CFR §9.41(g).
- C. Include a statement that the superintendent, or his/her representative, shall have reasonable access to the site as is necessary to monitor and ensure compliance with the approved plan of operations. This statement serves to meet the regulatory requirement at 36 CFR §9.37(f).

### **IX. OTHER APPLICABLE PERMITS**

Include a copy of, or application for, all other permits required by other federal, state or local agencies

### **X. BACKGROUND ENVIRONMENTAL INFORMATION**

This section of the plan of operations presents information on existing natural and cultural resources in the project area, specify actions that will be taken to minimize adverse impacts on surface resources, assess the environmental impacts of the proposed operation, and discuss any technologically feasible abandonment and reclamation alternatives. Information that should be presented in this section will be determined during project scoping with park staff. The park may have some of the required natural and cultural resource information for the operator’s use in preparing this section of the plan.

- A. Description of natural resources in the proposed operation area should include the following information:
  - 1. Soil types and properties such as permeability, porosity, erosional potential,
  - 2. Vegetation species composition in access road and wellpad area, including predominant herbaceous, shrub, midstory, and overstory species. (Note: This information is necessary to properly design a reclamation plan),
  - 3. Federal or state threatened / endangered plant or wildlife species that inhabit or frequent the proposed operation area, and
  - 4. Written and/or photographic documentation that the soil, water (surface and groundwater), vegetation, and wildlife outside the area of operations have not been directly impacted due to contaminants moving off location or contaminating substances left unconfined on location. If evidence exists to the contrary, those impacted areas are considered part of the area of operations and must be included in the reclamation plan.

- B. Identification and proximity of park visitor use areas (e.g., trails, campgrounds, public roads, picnic areas, overlooks etc.) near the proposed operation area.
- C. Description of the expected results of reclamation on the park land features and uses, wildlife, vegetation, soils, water resources, air quality, noise, and social and economic environments.





## REQUIRED OPERATING STIPULATIONS AND RECOMMENDED MITIGATION MEASURES FOR WELL PLUGGING AND SURFACE RECLAMATION

The tables in the following section describe required operating stipulations (Table 7.1) and recommended mitigation measures (Table 7.2) for well plugging and surface reclamation on NPS lands. The primary resource(s) that would be protected by the operating stipulation or mitigation measure described in the table are denoted by a ✓ symbol. Other resources that would benefit from the protective measures are marked with a + symbol.

Table 7.1 focuses on the National Park Service's Nonfederal Oil and Gas regulations at 36 CFR Part 9 Subpart B, but also includes applicable operating stipulations required under other federal laws and regulations. To ensure compliance with all applicable legal and policy mandates, it is the operator's responsibility to consult with the appropriate federal, state, and local agencies prior to conducting operations on NPS lands.

**Table 7.1. Required operating stipulations for well plugging and surface reclamation of oil and gas wells on NPS lands**

Well Plugging and Surface Reclamation Required Operating Stipulations	RESOURCES PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
The applicable legal citation is noted in [parenthesis] after the stipulation.											
The operator is required to submit a detailed description of reclamation activities as a part of the Plan of Operations [36 CFR § 9.36(a) (12)], to comply with the requirements of 36 CFR § 9.39 – Reclamation Requirements.											
Reclamation actions must begin as soon as possible, and no later than 6 months following completion of operations, unless a longer period of time is authorized in writing by the Regional Director [36 CFR § 9.39(a)].	+	✓	+	✓	✓	✓	✓	✓	✓	+	✓
Plug wells to meet the minimum requirements of the NPS [Department of Interior's Onshore Oil and Gas Order Number 2, Section III.G., Drilling Abandonment for Plugging Wells in Parks and Chapter 7 of this handbook].		✓		✓	+	✓	✓	+	+		✓
Remove from the unit all above ground structures, equipment, and roads used for operations, except for structures, equipment and roads that are to be used for continuing operations which are the subject of another approved Plan of Operations or of a plan which has been submitted for approval, or unless otherwise authorized by the Regional Director [36 CFR § 9.39(a)(2)(i)].		+		+	+	+	+	+	+		✓
Remove all debris resulting from the operations [36 CFR § 9.39(a)(2)(ii)].								+			✓
Remove or neutralize any contaminating substances [36 CFR § 9.39(a)(2)(iii)].		✓		✓	+	+	+	+	+		✓
Plug and cap all nonproductive wells and fill dump holes, ditches and other excavations [36 CFR § 9.39(a)(2)(iv)].										✓	✓

## Well Plugging and Surface Reclamation Required Operating Stipulations

The applicable legal citation is noted in [parenthesis] after the stipulation.

RESOURCES PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources
Restore topographic contours to reasonably conform to the contours that existed prior to initiation of operations [36 CFR § 9.39(a)(2)(v)].		✓		+	+	+	+	+	+	✓
Replace natural topsoil necessary for vegetative restoration [36 CFR § 9.39(a)(2)(vi)].		+		+	+	✓	+	+	+	+
Re-establish native vegetative communities [36 CFR § 9.39(a)(2)(vii)].		+		+	+	✓	+	+	+	+
Reclamation must provide for the safe movement of native wildlife, must re-establish native vegetative communities, the normal flow of surface and reasonable flow of subsurface waters, and must return the area to a condition that does not jeopardize visitor safety or public use of the unit [36 CFR § 9.39(b)].		+		✓	+	✓	+	✓	✓	✓
Wetland areas directly and indirectly affected by operations must be returned to their preexisting elevations, and soil, hydrology, and native vegetation communities must be restored as soon as practicable [NPS Procedures Manual 77-1, Appendix 2].		+		+	+	+	✓	+	+	+
When proposed operations cannot avoid direct and/or indirect adverse impacts on wetlands, the operator shall compensate for direct and indirect impacts on wetlands by restoring degraded or former wetland habitats. Compensation will be at a minimum 1:1 ratio. In other words, at least one acre of wetlands must be restored for each acre destroyed or degraded. The focus will be on the replacement of comparable wetland types and functions, not just wetland acreage. Compensation shall be performed prior to or at the same time impacts associated that approved oil and gas operations occur [NPS Director's Order 77-1 and NPS Procedures Manual 77-1 § 5.2(C)].		+		+	+	+	✓	+	+	+

**Table 7.2. Recommended mitigation measures for well plugging and surface reclamation of oil and gas wells on NPS lands**

Well Plugging and Surface Reclamation Recommended Mitigation Measures	RESOURCES PROTECTED										
	Air Quality	Soils	Paleontological Resources	Water (Surface and G.W.)	Floodplains	Vegetation	Wetlands	Fish and Wildlife	T & E Species	Cultural Resources	Visitor Use and Experience
When plugging wells within geomorphically active zones (e.g., the active meander belt of a river), set adequate surface plugs and cut casing below the expected lateral migration and water level changes of the stream channel to avoid future exposure.				+	+				+	+	+
Take necessary precautions to prevent oil, brine, chemicals, and other materials from reaching the ground during well plugging operations. Precautions include the use of plastic liners beneath the workover rig, pipe racks, and other equipment as necessary.		✓	✓	+	✓	+	+	+	+	+	+
Collect all fluids and solids returned to the surface from the wellbore in metal tanks and dispose of them in an approved disposal facility outside of the park.		✓	✓	+	+	+	+	+	+	+	+
Remove all fill material down to the original predisturbance level. Soil surveys for the area can assure that the soil profile is re-established after the excavation is completed.		✓		+	+	✓	+	+	+	+	+
Repair compacted soils by disking.		✓		+	+	+	+	+	+	+	+
Reclamation activities must re-establish natural functions of floodplains and wetlands.		+	+	✓	✓	✓	+	+	+	+	+
Revegetate cut-and-fill slopes and use good civil engineering practices to maintain disturbed areas in a stable condition to avoid erosion and sedimentation.		✓	✓	+	✓	+	+	+	+	+	+
Topsoil brought in from outside sources should be "clean" of non-native weed seed and plant materials.		✓		+	✓	+				+	
Provide for natural succession of vegetative species (herbaceous species, then woody species) and to reduce chance of introduction of exotic plant species by seeding areas with native seed materials.				+	✓	+	+	+			
Consider active revegetation and erosion control measures (i.e., reestablishing contours, seedbed preparation, planting seeds, planting or transplanting seedlings, adding mulch or other authorized materials to reduce the potential for erosion etc.) if natural growth is unacceptable.		✓	✓	+	✓	+	+	+		+	
Optimize survival of vegetation by planting during wet seasons (usually spring or fall).		+	+	+	✓	+	+	+			
Determine target percent cover for vegetation based on site (pre-operational) analysis. Reclamation of vegetation is acceptable if the native vegetation cover approximates the pre-operations vegetative cover and is sustained over at least three complete growing seasons.		+	+	+	✓	+	+	+		+	



## SURFACE RECLAMATION - A PICTORIAL OVERVIEW

If the operator considers reclamation requirements from the very beginning of project planning, it will pay off during reclamation operations.

The reclamation goals to the projects should be established during project planning, then a step-by-step procedure that will accomplish these goals should be designed and implemented. Throughout the planning and operational stages, the operator should consider what can be done to make any of the reclamation steps easier.



### **Think Reclamation From the Beginning of the Project**

Drilling is not yet completed on this well, but the reclamation plan was set in motion before the rig ever reached the location. In this case, the goal for reclamation was to return the site to the natural conditions and processes that existed prior to disturbance.

To ensure successful reclamation of the site, an operator should:

- Consider site restoration requirements as part of the initial site selection. (In this example, site selection included a fairly level upland site with little disruption of natural drainage, minimal cut/fill requirements, and vegetation clearing limited to grasses and shrubs).
- Take photos of the site prior to disturbance. Test representative soil samples for select metals (e.g. barium, lead), pH, oil & grease, conductivity, sodium absorption ratio, exchangeable sodium percent, and chlorides.
- Stockpile topsoil and larger rocks for use in site reclamation.
- Properly design and construct berms and liners to guard against contamination of the site. In a park, the mud system would have been fully containerized using steel tanks instead of earthen pits.

### SITE RECLAMATION

- Remove all equipment and materials.
- Dewater pit contents (this would only apply to operations outside of a park).
- Conduct post-operations soil sampling and testing for comparison with pre-operational conditions.



- Restore the natural contours once the site is determined to be free of significant contamination.

- Spread the topsoil that was stockpiled over the site.







- Seed the site with native grasses and other vegetation.
- Operators can often optimize revegetation efforts by properly timing reseeding.
- Spreading mulch over the site is often an effective means of preventing erosion until plants take hold.



After seeding, the operator monitored and documented the progress of vegetative growth. This successful restoration did not happen by chance, but through careful planning and execution.



## ROAD RECLAMATION

Road reclamation follows the same steps as the previous example.



Restore the natural topographic contours.



Replace the soil and distribute seed mixture. Note the small furrows perpendicular to the grade to help minimize erosion.



Monitor and document the progress of the reclamation activities.

## CHAPTER 8

# TRANSPARK PIPELINES

This chapter includes the following information:

- NPS permitting process checklist for transpark pipelines,
- NPS regulation of transpark pipelines,
- Rights-of-way for new oil and gas transpark pipelines in NPS units,
- National Park Service special use permits,
- Special Use Permit information requirements for transpark pipelines, and
- Other agencies responsible for regulating oil and gas pipelines.

### NPS PERMITTING PROCESS CHECKLIST FOR TRANSPARK PIPELINES

The following checklist outlines the permitting process for constructing and operating transpark pipelines in units of the NPS. This checklist can be used by a pipeline operator to make sure that all of the required steps have been completed to prepare and have a Special Use permit (SUP) approved by the National Park Service.

- ☐ Applicant contacts park regarding interest in constructing pipeline through the park (for more information, see CH 8).
- ☐ Applicant provides written documentation demonstrating legal right to conduct operations through the park (for more information, see CH 8).
- ☐ Applicant meets with park staff to scope proposed project (for more information, see CH 2).
- ☐ Applicant meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Applicant requests temporary access permit to gather information needed to complete the application for a special use permit (for more information, see CH 2).
- ☐ Applicant conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the pipeline route (for more information, see CH 2).
- ☐ Applicant prepares special use permit application and submits it to the National Park Service (for more information, see CH 8).

The special use permit application for constructing and operating a transpark pipeline must include the following sections:

- ☐ I. Ownership Information
- ☐ II. Maps and Plats
- ☐ III. Timeline for Operations
- ☐ IV. Description of Operations
- ☐ V. Spill Control Plan
- ☐ VI. Reclamation Plan
- ☐ VII. Affidavits and Statements
- ☐ VIII. Other Applicable Permits
- ☐ IX. Environmental Information to Comply with NEPA and NHPA

- ☐ NPS performs a completeness and technical review of the SUP application (for more information, see CH 2).
- ☐ Applicant revises SUP application, if necessary (for more information, see CH 2).
- ☐ Applicant (or contractor hired by the applicant) prepares NEPA document, submits it to the NPS for approval to release for public review, and initiates mandated consultations with other agencies (for more information, see CH 2).
- ☐ Park releases NEPA document for public review, completes public review process, finalizes decision documents, and notifies the applicant that the SUP has been approved, conditionally approved, or rejected.
- ☐ Applicant agrees to conditions of approval (if any), submits applicable state and federal permits, and files performance bond with the NPS.

### NPS REGULATION OF TRANSPARK PIPELINES

Transpark oil and gas pipelines and their rights-of-way lie outside the scope of the 9B regulations. They are owned and operated by persons exercising rights not tied to the oil and gas ownership beneath the park. Generally, transpark pipelines begin and end outside the park, are associated with a rights-of-way, and do not support 9B operations in the park.

Activities associated with transpark pipelines will be subject to special use permits as discussed in this chapter. Where pipeline operators do accept delivery of oil or gas from a 9B operation via a gathering system, whether the line is regulated by the 9B regulations or special use permit is based on who owns and operates the gathering system and/or who owns the product inside it. Generally, 9B operations end at the point of product sale and change in pipeline system ownership, which is usually the same. For more information, see *Chapter 9 -Gathering Lines and Flowlines* in this handbook. Thus, a transpark pipeline operation includes lines from the point of product sale to the main pipeline and includes the segment of pipeline from its entry and exit across park land.

Transpark pipeline operators should note that if park system resources are damaged from operation of the pipeline in a park unit, the NPS can exercise its authority under the Park System Resource Protection Act (Public Law No. 101-337, 104 Stat. 379), codified as amended at 16 U.S.C. §§19jj through 19jj-4 (2000), to undertake all necessary actions to protect park system resources. Operators will be held liable to the United States for its response costs as well as for any damages to park system resources. For more information on an operator's liability, see *Chapter 12 – Liability of Operators, Their Contractors and Subcontractors*.

### RIGHTS-OF-WAY FOR NEW OIL AND GAS TRANSPARK PIPELINES IN NPS UNITS

The general rights-of-way statute of the NPS contained at 16 USC § 5 does not authorize the NPS to issue oil and gas pipeline rights-of-way across lands in the National Park System. Thus, the NPS may not issue rights-of-way under the regulations at 36 CFR Part 14 in any NPS unit.

The enabling acts for a few NPS units contain authority sufficiently broad for the NPS to issue rights-of-way for oil and gas pipelines. Prior to proposing a transpark pipeline through a NPS unit, the applicant must contact the park superintendent to determine if such authority exists in the park for a new rights-of-way.

In most parks there is no statutory authority for granting new rights-of-way for oil and gas pipelines. New pipelines may be constructed within existing rights-of-way in any park in conformance with the terms of the legal document creating the rights-of-way. When an entity seeks to construct a new pipeline carrying natural gas, it must first obtain a *certificate of public convenience and necessity* from the Federal Energy Regulatory Commission (FERC) (see 18 CFR § 157.7).

## **NATIONAL PARK SERVICE SPECIAL USE PERMITS**

The NPS has existing regulatory authority to control activities within rights-of-way associated with transpark oil and gas pipelines in regulations at 36 CFR Parts 1-5. Mowing and trimming vegetation, inspection or testing pipelines, removal of fluids from oil and gas pipelines and installing, shutting down or replacing pipelines, are common activities in pipeline rights-of-way requiring a NPS Special Use Permit (SUP). 36 CFR §5.3 *Business Activities* covers maintenance activities along a pipeline corridor. 36 CFR §5.7 *Construction of buildings or other facilities* covers pipeline construction on NPS lands. To the extent that a proposed activity in a rights-of-way triggers the general regulations, a Special Use Permit must be obtained from the NPS before the activity can proceed. Such activities are routine and provide for personal safety, leak or spill detection, and unencumbered response in the event of a spill or emergency. The park superintendent has the approval authority for Special Use Permits (36 CFR §1.6).

Pursuant to NPS *Reference Manual # 53: Special Park Uses*, which became effective in April 2000, Special Use Permits may only be issued if the special park use will not:

- cause injury or damage to park resources;
- be contrary to the purposes for which the park was established;
- unreasonably impair the atmosphere or peace and tranquility maintained in wilderness, natural, historic or commemorative locations within the park;
- unreasonably interfere with the interpretive visitor service or other program activities, or with the administrative activities of the NPS;
- substantially impair the operation of public facilities or services of NPS concessionaires or contractors;
- present a clear and present danger to public health and safety; or
- result in significant conflict with other existing uses.

If issued, the Special Use Permit must contain:

- an adequate performance bond, that will cover the cost of restoration, repair, rehabilitation and clean-up of the area, and
- any other terms and conditions that the park deems necessary to protect park resources or public safety (see 36 C.F.R. § 1.6(e)).

Performance bonds are the permittee's guarantee of compliance with permit conditions and reimbursement to the park for damage to resources and/or facilities as a result of the permittee's activities. In lieu of a surety bond, a permittee may elect to deposit U.S. bonds or notes, a certified or cashier's check, bank draft, money order, or cash equal to the amount of the required performance bond. A listing of bonding companies authorized to issue bonds to the United States may be found in U.S. Treasury Circular 570.

The NPS is authorized to recover administrative costs, including costs for National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance associated with preparing and issuing a Special Use Permit in units of the National Park system (16 U.S.C. § 3a, NPS Director's Order 53, D.O. Reference Manual 53). An applicant for a SUP may prepare the NEPA document, but the NPS is ultimately responsible for its content.

The SUP permit will either be short-term (not to exceed 1 year) or long-term (not to exceed 5 years). If the SUP is issued as a long-term permit, the park will conduct an annual administrative and operational review to determine the continued appropriateness of the operation and to ensure that there is no impairment or derogation of park resources and values. Special Use Permits can be renewed if the specified use continues to meet the conditions of the permit. SUPs may be revoked upon the operator's violation of applicable law or any conditions in the permit.

### **SPECIAL USE PERMIT INFORMATION REQUIREMENTS FOR TRANSPARK PIPELINES**

This list of information requirements is presented to assist National Park Service personnel and pipeline permittees define specific information that should be included in a Special Use Permit application. These information requirements have been adapted from the provisions outlined in NPS Reference Manual 53 (Chapter 6, Exhibit 1). The park will use this information to evaluate the application and determine the appropriate environmental and cultural documents required under the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and other regulatory requirements.

An application for a Special Use Permit should be brief but complete. Maps, site plans and cross-sections must be provided where applicable.

The permittee will submit the application for a special use permit, prepare the NEPA documentation for NPS review, tender the performance bond, and be the responsible party for compliance with the special use permit.

#### **I. OWNERSHIP INFORMATION**

- A. Name(s), address(es), and phone number of:
  - 1. Pipeline company
- B. Name, address and telephone number of the permittee including:
  - 1. Person accountable for operations,
  - 2. Field representative, and
  - 3. Contact person in case of spill, emergency, etc.
- C. Copy of the instrument(s) demonstrating the permittee's right to construct and operate a transpark pipeline within the rights-of-way (ROW).
  - 1. Affidavit of ownership, and
  - 2. Documentation establishing the ROW.

## **II. MAPS AND PLATS**

The purpose of this section is to graphically show the permittee's area of proposed activities in relation to the park, and the locations of man-made or environmental hazards, park facilities, and visitor use areas that may affect the methods of operations.

- A. Provide map(s) showing the proposed pipeline route. The map(s) should be on the appropriate 1:24,000 scale USGS quadrangle(s) (7.5 minute series) and identify the following:
  - 1. NPS park unit boundary,
  - 2. Locations of pipeline(s). Mark the entire area of surface disturbance on the map, including the dimensions of the pipeline(s),
  - 3. Locations of wells, or any other potential hazards within a one-mile radius of the proposed pipeline(s), and
  - 4. Locations of environmentally sensitive areas that might require avoidance or other mitigation measures.

## **III. TIMELINE FOR OPERATIONS**

The purpose of this section is to identify when the transpark pipeline operations will be conducted and how long they are expected to last. Any proposals to modify construction operations due to seasonal timing restrictions should also be noted in this section.

- A. Provide an estimated timeline for the proposed pipeline, including the following information (as applicable):
  - 1. Estimated date to begin equipment transportation to the staging area,
  - 2. Estimated date to begin construction of the pipeline,
  - 3. Anticipated longevity of pipeline operations,
  - 4. Estimated date when reclamation will begin, and
  - 5. Estimated time to complete reclamation.

## **IV. DESCRIPTION OF OPERATIONS**

The description of operations should provide enough detail on the proposed methods, sequence, and equipment to assess the proposal's affects on the environment. Thus the amount of information in this section will vary depending both on the planned activities and the environment where they will be conducted. Address the following requirements as applicable, providing enough detail for the NPS to have a clear understanding of the proposal.

- A. Methods, sequence of work, and all equipment to be used in pipeline construction, operation, and maintenance:
  - 1. Specific location and dimensions of the proposal (written description; engineering drawings; site plan; pre-disturbance and post-disturbance cross-sections; photos; and other descriptive information),
  - 2. Description of construction and operation of the pipeline:
    - a. list all major equipment / structures to be constructed,

- b. type and size of equipment, frequency of use,
    - c. size, type, length, depth, of pipeline(s),
    - d. inspection and testing procedures and frequency,
    - e. type of product (e.g., oil, gas),
    - f. maximum and mean flow rate of product,
    - g. maximum and mean operating pressure,
    - h. cathodic protection methods, and
    - i. pig" launching/retrieving station(s).
  3. Description of routine and periodic maintenance activities (testing, cleaning, mowing, trimming etc.):
    - a. frequency,
    - b. mode and location of access,
    - c. types of equipment to be used, and
    - d. vegetation management along line routes (e.g., mowing, trimming etc.).
- B. Description of all actions to control, minimize, or prevent damage to the recreational, biological, scientific, cultural, and scenic resources of the park. These include those mitigation measures (methods and equipment) that the permittee and NPS identified during project scoping and the onsite meeting to improve operations with respect to park resources and visitor safety (as well as any other measure developed by the permittee during the preparation of their SUP application). This also includes all actions to be taken to comply with regulatory operating standards and state and federal permit requirements (as applicable).
- C. Description of all security measures that will be used to ensure public health and safety.

### V. SPILL CONTROL PLAN

The requirements for a Contaminating or Toxic Substance Spill Control Plan are not specifically found in Director's Order 53. See *Chapter 11 – Spill Control Plan* for the organization and content of a Spill Control Plan.

### VI. RECLAMATION PLAN

#### A. Reclamation Goals.

1. Summarize the site-specific reclamation goals developed during project scoping. Site-specific goals might include a desired percent of vegetative ground cover, the type of plants, soil stabilization, rutting repair, etc.
2. State the timeframes for reclamation. Describe when the reclamation activities would begin, how long they would last, and the schedule for monitoring the results of the reclamation.

#### B. Reclamation Procedures.

The following steps need to be completed at a minimum to reclaim the operations site. The permittee can describe the methods and equipment that will be used to accomplish each of these steps.

1. Remove pipeline(s) or abandon pipeline in-place (this is up to discretion of the park superintendent) and fill in any excavations.



2. Remove all above ground structures, equipment, and roads.
  3. Remove all other man-made debris that resulted from operations.
  4. Remove or neutralize contaminating substances. For this step, the permittee is responsible for removing soils or any other material that becomes contaminated. If there is reason to suspect soils or groundwater have been contaminated, the permittee will likely need to collect and test samples to verify that contaminating substances have been removed or neutralized. Neutralization or removal of contamination means that contaminant concentrations will be reduced in soils (or groundwater) to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands and waters, provides for the safe movement of native wildlife, and which does not jeopardize visitor health and safety.
  5. Restore the natural contour of the land.
  6. Place and prepare the natural soils needed for vegetation.
  7. Re-establish native vegetative communities (describe seed mix and rates of application, exotic species control methods, water control or diversion structures, and erosion control measures). In addition to the revegetation procedure, this section should include the steps for monitoring progress of the reclamation effort.
- C. Cost Estimate.** Include a cost estimate for removing pipelines(s) and reclaiming the area to conform with the natural topography and vegetation type.

## **VII. AFFIDAVITS AND STATEMENTS**

- A. Include an “Affidavit of Compliance” signed by an authorized official of the company. The affidavit should state that the proposed operations are in compliance with all applicable federal, state and local laws and regulations.
- B. Include a statement that the applicant is fully accountable for all contractor and subcontractor compliance with the requirements of the approved special use permit.
- C. Include a statement that the superintendent, or his/her representative, shall have reasonable access to the site as is necessary to monitor and ensure compliance with the special use permit.

## **VIII. OTHER APPLICABLE PERMITS**

- A. Include a copy of, or application for, all other permits required by other federal, state or local agencies.

## **IX. ENVIRONMENTAL INFORMATION TO COMPLY WITH NEPA AND NHPA**

Compliance with the National Environmental Policy Act and the National Historic Preservation Act is the responsibility of the applicant for the special use permit. The content and format of the NEPA document must comply with NPS Director’s Order 12 and Handbook (Conservation Planning, Environmental Impact analysis, and Decision Making). For more information on NEPA compliance see Chapter 2, pages 2-19 through 2-21.

## **THIRD PARTY MONITORING**

Depending on the geographic extent of a transpark pipeline, the NPS may require a permittee to hire a third party monitor to oversee pipeline construction. Third party monitoring would be required by the NPS to ensure compliance with the terms of the approved special use permit and protection of park resources and values. The NPS may develop stipulations that specify conditions of the third party monitoring. Examples of additional stipulations include, but are not limited to:

- The NPS must approve the selection of the monitor and the terms of the permittee's contract with the third party monitor;
- The third party monitor would be paid by the permittee,
- The contract must include a provision requiring the monitor to report directly to the NPS, and not to the company, and identify the frequency of reports (daily, weekly, monthly); and
- The NPS may suspend the special use permit if the quality of the monitoring performed is unsatisfactory to the NPS.

## **OTHER AGENCIES RESPONSIBLE FOR REGULATING OIL AND GAS PIPELINES**

### **U.S. DEPARTMENT OF TRANSPORTATION (DOT)**

The federal Department of Transportation is responsible for safety and environmental protection considerations for pipelines. This agency regulates the design, construction, operation, maintenance, and emergency response pertaining to both oil and gas pipelines under the Pipeline Safety Act of 1992. The act covers both interstate and intrastate pipelines.

The DOT regulations govern safety and environmental protection associated with interstate pipelines. Specifically, the DOT regulations cover testing, reporting, inspection, maintenance, corrosion control, and spill contingency plans of these pipelines. State regulations often mirror the federal requirements that govern intrastate pipelines.

- Regulations at 49 CFR Parts 191 and 192 govern gas and regulations at 49 CFR Part 195 govern oil. Under the regulations oil is considered a hazardous liquid.
- The regulations contain a number of exceptions, including grandfathering. The regulations do not cover flowlines.
- DOT has jurisdiction over the operation and maintenance of interstate pipelines, which generally cover pipelines with a diameter of 20 inches or more.
- Both criminal and civil penalties can be invoked under these regulations.

### **FEDERAL ENERGY REGULATORY COMMISSION (FERC)**

The Federal Energy Regulatory Commission is responsible for establishing just and reasonable pricing for moving both natural gas and oil through pipelines in interstate commerce throughout the country. FERC has no jurisdiction over the construction of oil pipelines but does play a substantive role in granting permission for building new pipelines that carry gas. Under the Natural Gas Act of 1938, FERC must issue a company a certificate of public conveyance and necessity before the company can construct an interstate gas pipeline (see 18 CFR a57.7).

Essentially, FERC determines “where” new gas pipelines can be built while DOT regulates the “hows” from a public safety and resource protection perspective. FERC does not oversee the construction of oil and gas pipelines or regulate the supply and price of oil or oil products. In addition to authorizing the siting of natural gas lines, FERC also is responsible for establishing just and reasonable pricing rates for moving both natural gas and oil through pipelines in interstate commerce throughout the country.

### **STATE AGENCIES**

State agencies such as the Railroad Commission of Texas are responsible for the regulation of intrastate pipelines if they have been approved by the DOT. States can impose more rigorous requirements on intrastate pipelines than are required under federal law. The operator must check with the requirements in the state where the operation is occurring for specific information on these requirements.



## **CHAPTER 9**

### **36 CFR 9B FLOWLINES AND GATHERING LINES**

This chapter includes the following information:

- NPS regulation of existing flowlines and gathering lines,
- NPS regulation of new flowlines and gathering lines, and
- Information requirements for a plan of operations for flowlines and gathering lines.

#### **NPS REGULATION OF EXISTING FLOWLINES AND GATHERING LINES**

An approved plan of operations is not required for a flowline or gathering line that transports nonfederal oil and gas on, across, or through a NPS unit provided the operation meets all criteria for an existing operation pursuant to 36 CFR 9.33 (see *Chapter 6 – Existing Operations* for more information).

However an operator authorized to conduct operations pursuant to this exemption will lose such exemption, and will be subject to the requirement to have an approved plan of operations and other 9B requirements, if one of the following occurs:

- The operator proposes any construction, alteration, modification, or change in pipeline (flowline and gathering lines) requiring the issuance of a new state or federal permit;
- The operator proposes any construction, alteration, modification, maintenance, or change in pipeline (flowline and gathering lines) requiring use or occupancy of additional federally controlled lands or waters; or
- The operator transfers the interest in the pipeline to a new owner/operator.

Note that the superintendent has the authority to suspend any existing operation, including the transport of oil and gas via flowlines and gathering lines if the operation poses and immediate threat of significant injury to federally owned or controlled lands or waters pursuant to 36 CFR 9.33(c).

#### **NPS REGULATION OF NEW FLOWLINES AND GATHERING LINES**

The 9B regulations govern all operations within a NPS unit in connection with nonfederally owned oil and gas. The regulations at 36 CFR § 9.31(c) define operations to include “construction or use of ...pipelines” to transport nonfederal oil and gas. Thus, operators proposing to construct a pipeline (flowline or gathering line) in connection with nonfederal oil and gas within a unit, or on a pipeline rights-of-way that predates the unit, must obtain NPS approval of a plan of operations prior to such construction providing the proposed pipeline is on, across or through federally owned or controlled lands or waters in the unit. If a nonfederal oil and gas operation in a park connects to transpark pipeline via a flowline or a gathering line then that portion of the flowline or gathering crossing the park, up to the point of product sale and

## CHAPTER 9 – FLOWLINES AND GATHERING LINES

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change in pipeline system ownership, is subject to the 9B regulations, including the plan of operations requirement.

New flowlines and gathering lines that are proposed in connection with a nonfederal oil and gas operation, (oil and gas in a pipeline prior to the point of sale of the oil and gas) must be under a plan or operations. In addition, operations that have lost their exempt status under 36 CFR § 9.33 must also be under a plan of operations, including the flowlines and gathering lines associated with such operation.

### INFORMATION REQUIREMENTS FOR A PLAN OF OPERATIONS FOR FLOWLINES AND GATHERING LINES

The transport of oil and gas associated with a nonfederal operation must be included in the plan of operation that covers the proposed production phase of the operation. The information requirements would be the same as are presented in Chapter 4 – Drilling and Production Operations. The major components of a plan of operations for flowlines and gathering lines would include the following:

- ☐ Operator contacts park regarding interest in conducting oil and gas operations (for more information, see CH 2).
- ☐ Operator provides written documentation demonstrating right to conduct operations in the park (for more information, see CH 2).
- ☐ Operator meets with park staff to scope proposed project (for more information, see CH 2).
- ☐ Operator meets with affected federal, state, and local agencies to identify resource issues, permitting requirements, and impact mitigation strategies (for more information, see CH 2).
- ☐ Operator requests temporary access permit to gather information needed to complete the plan of operations (for more information, see CH 2).
- ☐ Operator conducts necessary surveys, including natural and cultural surveys, as applicable and surveys / stakes the operations area (for more information, see CH 2).
- ☐ Operator prepares the plan of operations and submits the draft plan to the National Park Service (for more information, see CH 4).

The Plan of Operations for drilling and production operations must include the following sections:

- ☐ I. Lease and Ownership Information
- ☐ II. Maps and Plats
- ☐ III. Description of Well Geology
- ☐ IV. Timeline for Operations
- ☐ V. Description of Operations
- ☐ VI. Spill Control Plan
- ☐ VII. Reclamation Plan
- ☐ VIII. Affidavits and Statements
- ☐ IX. Other Applicable Permits
- ☐ X. Background Environmental Information
- ☐ XI. Relationship to Park Planning Documents

## **CHAPTER 10 PERFORMANCE BONDS**

### **PERFORMANCE BOND REQUIREMENT**

The National Park Service's 9B regulations require that an operator file a performance bond for all types of nonfederal oil and gas operations and all phases of the operation(s). The bond is in addition to any other bonds the operator may have to provide to the state or other federal agencies. A performance bond is a measure of insurance (currently up to \$200,000) for the NPS so that the operator will comply with the terms and stipulations of the approved plan. The bond amount is not, however, the limit of liability for damage to park resources. Under the 9B regulations the operator is responsible for all damages to park resources for failure to comply with the approved plan of operations, temporary approval permit, or where existing operations are allowed to continue, failure to comply with the applicable permit. Depending upon the type of damage, an operator may also be held liable under other statutes including the Park System Resource Protection Act, 16 (U.S.C. § 19jj), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and the Oil Pollution Act (OPA). For additional information on these laws, see *Appendix B - Federal Laws, Regulations, and Policies Applicable to Nonfederal Oil and Gas Operations*.

Either the NPS or the operator can petition to amend the bond amount. The regional director of the NPS is responsible for determining the proper bond amount. The determination shall be based on a written evaluation contained in the NEPA documentation prepared for a proposed plan of operations. Below is some key information regarding performance bonds, including: the types of performance bonds that are acceptable to the NPS, basic information that should be included in the bond, and how the regional director will determine an appropriate bond amount for a particular operation.

### **ACCEPTABLE TYPES OF SECURITIES**

- Corporate Surety Bond (most common type of surety used),
- Irrevocable Letter of Credit,
- Cash,
- Cashier's Check,
- Certified Check,
- U.S. Postal Money Order,
- U.S. Treasury Bond,
- U.S. Treasury Bill, or
- U.S. Treasury Note.



## **REQUIREMENTS FOR CORPORATE SURETY BONDS AND IRREVOCABLE LETTERS OF CREDIT**

### **CORPORATE SURETY BONDS**

- Acceptable surety company,
- Acceptable bond format,
- Adequately cover total bond amount,
- Authorized signatures, and
- Surety company must consent to liability and waive notice for revisions, amendments, or other modifications to the plan of operations covered by the bond.

### **CRITERIA FOR ACCEPTABLE SURETY COMPANIES**

Surety companies must:

- Be listed in the most recent Department of Treasury Circular 570 (circular lists companies holding certificates of authority as acceptable sureties on bonds payable to the federal government). Circular 570 is available on the web at <http://www.fms.treas.gov.c570/index>,
- Be licensed to transact business in the state in which the company or its agent executes the bond. (license information is in Circular 570),
- Appoint an agent to accept federal service of process on behalf of the company in the federal judicial district where the principal resides, where the obligation is to be performed, and in Washington D.C. (process agent information is included in Circular 570), and
- Have an underwriting limitation sufficient to cover the penal sum of the bond, or furnish a coinsurance or reinsurance agreement with another company identified in Circular 570.

### **IRREVOCABLE LETTER OF CREDIT**

An irrevocable letter of credit must:

- Be issued by a bank that is a member of the Federal Reserve System, or insured by the FDIC,
- Include one, and only one letter of credit number,
- Carry a Standard and Poors "A" rating,
- Be clearly irrevocable,
- Include the name of the principal,
- State the maximum limit of credit extended,
- Include a credit limit that equals or exceeds bond amount,
- Include an authorization to draw sight drafts upon the issuing institution in favor the National Park Service,
- Clearly state that the letter of credit number appearing on a sight draft is sufficient for honoring that sight draft, and
- Include an expiration date for presentation of drafts for payment.

A sample *Model Letter of Credit* that can be used by an operator is included at the end of this chapter.

## **BOND AMOUNTS AND LIMITATIONS**

The regional director is responsible for determining the proper amount of the operator performance bond. The operator's bond amount is determined as follows:

$$\text{Estimated cost of reclamation} + \text{liability amount} = \text{total bond amount}$$

### **COST OF RECLAMATION**

The cost of reclamation includes the following:

- Cost of plugging the well(s),
- Removal of all equipment and debris,
- Restoration of topographic grade,
- Topsoil replacement,
- Vegetation planting/seeding,
- Exotic species control, and
- Reclamation monitoring.

### **LIABILITY AMOUNT**

The liability amount includes the following:

- Potential amount of oil that may be spilled, in a worse case scenario, and the estimated cost to contain and clean up such a spill and restore damaged resources;
- Potential amount of hazardous substances and waste that may be spilled, in a worst case scenario, and the estimated cost to contain and clean up such a spill and restore damaged resources;
- Potential extent of damage to park resources resulting from a fire, and the cost to contain and extinguish a fire and restore damaged resources; and
- Potential for release of harmful or toxic gas, and the cost to secure the area and restore damaged resources.

## **REGULATORY LIMITATIONS ON TOTAL BOND AMOUNTS**

### **LIABILITY CAP**

- \$5,000 for a single party geophysical operation
- \$25,000 for a multiple party geophysical operation (e.g., most 3D seismic operations); or
- \$50,000 for each exploratory well, production, or pipeline operation.

### CAP ON TOTAL BOND AMOUNT

- For a single operation or multiple operations the total bond amount may not exceed \$200,000.
- For a production operation, the maximum the NPS could require is \$200,000 (\$150,000 for reclamation + \$50,000 for liability).
- If one operator is conducting multiple operations in a single park, the total bond amount the NPS can require of the operator for **all** of its operations is \$200,000.
- Bonds are for each specific park, and are not for a NPS system-wide or government blanket bond.

### GETTING A PERFORMANCE BOND RELEASED

#### TRANSFER OF OPERATIONS

If an operator transfers a production operation to another operator, the transferring operator remains liable under the bond until the superintendent is given notice of the transfer (within 60 days of the transfer) and the superintendent determines that the transferring operator was in compliance with plan of operations at the time of the transfer.

*A Model Form for a Performance Bond and Model Letter of Credit* are included below to assist operators in securing a performance bond for their operation(s).

## MODEL FORM FOR A PERFORMANCE BOND (CORPORATE SURETY BOND)

### PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT WE,                     (Operator)                    , as Principal, and                     (Surety)                    , a corporation duly incorporated under the laws of the State of                     (State)                    , and authorized to do business in the State of                     (State in which Park is located)                    , as Surety, are held and firmly bound unto the U.S. Department of the Interior, National Park Service ("NPS"), Director,                     (NPS Region)                     Region ("regional director") in the sum of                     (Dollar Amount)                     (\$000,000.00) for the payment of which we hereby bind ourselves, our heirs, executors and administrators, jointly and severally by these presents.

THE CONDITIONS OF THIS BOND ARE SUCH that the Principal has submitted to the NPS a plan of operations to conduct                     (Type of Operation)                     in                     (Park Name)                    ,                     (State)                    , in accordance with the requirements of 36 C.F.R. Part 9, Subpart B. Upon NPS approval of the plan of operations, the Principal shall faithfully comply with all terms and conditions of the plan, or any revision, amendments, or modifications thereto [hereinafter "approved plan of operations"], including all applicable federal, state, and local laws. The Principal and Surety shall be held jointly and severally liable for any and all damages to federally owned or controlled lands, waters, or resources resulting from the Principal's failure to comply with the terms and conditions of the approved plan of operations. If, at any time during operations, reasonable efforts to secure the Principal's compliance with any provision of the approved plan of operations fail, the regional director may attach any or all of the bond amount necessary to remediate or reclaim federally owned or controlled lands, waters, or resources damaged by the Principal's failure to comply with the terms and conditions of the approved plan of operations. The regional director may also require that the Surety perform reclamation in accordance with the approved plan of operations. Surety hereby waives notice for revisions, amendments or other modifications to the approved plan of operations covered by the bond. The Principal and Surety agree to hold the United States and its departments, agencies, and employees harmless from any damages or liabilities incurred by reason of his/her engaging in said business.

NOW, THEREFORE, notwithstanding any other provision of law or regulations, until such time as the regional director has notified the Principal that it has successfully reclaimed the area of operations and has performed all other duties and responsibilities as described in the approved plan of operations, for a                     (Type of Operation)                     at                     (Park Name)                     in,                     (State)                     according to the requirements of 36 C.F.R. Part 9, Subpart B, and has protected the United States and its departments, agencies, and employees from any damage or liability claim as herein before stated, this obligation shall remain in full force and effect.

This bond may be terminated as to future acts of the Principal upon written notice by the Surety. Written notice shall be given at least sixty (60) days prior to termination. Said notice shall be sent to superintendent, Attention:                     (Full name and Address of Resource Manager in Charge of Park's Nonfederal Oil and Gas Operations)                     by certified mail.

This agreement supplements, and is not in lieu of, the terms, conditions, duties and responsibilities contained in 36 C.F.R. Part 9, Subpart B, or in any other federal, state, or local

## CHAPTER 10 - PERFORMANCE BONDS

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law or regulation. This agreement shall not limit any claims or causes of action against the Principal or Surety otherwise available to the United States under any other federal law or regulation to protect, reclaim, or remediate federally owned or controlled lands, waters, or resources in \_\_\_\_\_ **(Park Name)** \_\_\_\_\_, **(State)** \_\_\_\_\_. This bond becomes effective on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and is continuous in nature until terminated.

SIGNED:

---

Principal

Date

---

Surety

Date

## MODEL LETTER OF CREDIT

**NOTE:** This letter is optional. Operators may elect to convey its interest to undertake nonfederal oil and gas operations in the park to the park's nonfederal oil and gas program contact by telephone. However, the park's receipt of a copy of the operator's legal instrument is required to begin the 36 CFR 9B permitting process.

To: United States Department of the Interior  
National Park Service  
(insert name of Park)  
(insert mailing address for Park)

### IRREVOCABLE LETTER OF CREDIT

Issuing Financial Institution: (insert name)  
Telephone No: (insert 10-digit number)  
Address: (insert full mailing address)  
O&G Lease No. : (insert name and any assigned name/title)  
Date Issued: (insert date)  
Letter of Credit No. (insert number)  
Amount: (insert dollar amount)

On behalf of (insert name of operator and full mailing address), as Obligor, we (insert name of issuing financial institution) hereby establish an irrevocable Letter of Credit (LOC) in favor of the United States Department of the Interior, National Park Service, (insert name of park) (NPS) and agree to immediately pay upon demand by and to the NPS the full amount of (spell-out dollar amount) (\$000,000.00) upon receipt of written demand by the NPS.

This LOC is effective the date issued and will expire exactly one year from the date issued. In the absence of a notice from the bank to the NPS at least 30 days prior to the stated or any extended expiration date not to renew the LOC, the LOC will be automatically renewed in full force and effect for an additional one year period.

Upon receipt by the NPS of a non-renewal notice from us, the NPS may draw on us by sight draft identified by Letter of Credit No. (insert number) for up to the amount of this LOC, prior to the expiration thereof, provided that such draft is accompanied by a statement signed by the Regional Director of the (insert name of NPS region) Region or his designee to the effect that no satisfactory replacement bond has been provided by the Obligor. It is also understood that, at any time this LOC is in effect the NPS may draw on us by sight draft identified by Letter of Credit No. (insert number) for any amount, up to the full amount, to cover any default by Obligor with respect to its obligations under the Plan of Operations for the above referenced lease. Such drawings shall be accompanied by a statement signed by the Regional Director of the (insert name of NPS region) Region or his designee to the effect that the obligor has been determined to be in default and the amount drawn represents the reasonable amount as determined by NPS of such default.

## CHAPTER 10 - PERFORMANCE BONDS

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It shall not be required for the NPS in order to draw on this LOC to furnish the original letter; however, it is understood as a condition of any payment thereunder that the face amount of the letter shall automatically be reduced by any payment made by the bank and that the NPS will promptly surrender the original letter when and if the bank shall tender to the NPS the full amount of funds represented by this letter; such surrender to occur as soon as reasonably practical after full payment is made. The original letter shall also be surrendered promptly following its expiration provided that no drawing on such letter was made prior to such expiration.

We assure that the amount of credit herein established will not be reduced for any reason during the effectiveness of this letter without the prior written approval of the NPS.

Letter of Credit No. (insert number)

We certify that the deposits of this bank are Federally Insured by the Federal Deposit Insurance Corporation and that this bank is a member of the Federal Reserve System.

(insert name of issuing financial institution)

by:

---

Vice President

ATTEST:

---

Senior Vice President



## CHAPTER 11

# SPILL CONTROL PLAN

The requirements for a Contaminating or Toxic Substance Spill Control Plan (Spill Control Plan) are not specifically found in the 9B regulations. The NPS combined informational requirements<sup>1</sup> and operating standards<sup>2</sup> from the 9B regulations to develop a format for a Spill Control Plan.

Through the Spill Control Plan, the NPS asks operators to answer the following questions:

1. What substances or conditions are present on the location or may be encountered during operations that pose risks to human health and safety or the environment?
2. How does the operator plan to manage such substances or conditions to minimize the risks to human health and safety and the environment?
3. What actions will the operator take should a spill event occur?

### SPILL CONTROL PLAN ELEMENTS

The Spill Control Plan should be a separate section in the plan of operations and follow the format described below. An example Spill Control Plan is included at the end of this chapter.

Sections A and B should answer the first question: What substances or conditions are present on location or may be encountered during operations that pose risks to human health and safety or the environment?

#### SECTION A – IDENTIFICATION OF CONTAMINATING OR TOXIC SUBSTANCES USED ON SITE OR EXPECTED TO BE ENCOUNTERED DURING OPERATIONS

Identify substances on the location or expected to be encountered during operations, which if released, pose a threat to human health and safety or the surrounding environment.

This information is best presented with a table listing all the fuels, chemicals, materials, and additives to be used or encountered during the conduct of operations. The table should list the product name, its hazardous content, and its hazardous effect (e.g., flammable, corrosive, irritant, etc.). Most materials and chemicals have Material Safety Data Sheets (MSDS) that can be provided by the suppliers. The MSDS's will identify the product's hazardous ingredients, physical/chemical properties, fire and explosion hazards, reactivity, health effects and first aid procedures, environmental concerns, and necessary protective control measures. The operator should attach a MSDS for each item listed in the table. Table 10-1 in this chapter is an example of the type of information that should be included in the Spill Control Plan.

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<sup>1</sup> See 36 CFR § 9.36(a)(10)(vi), § 9.36(a)(14), § 9.36(d)

<sup>2</sup> See 36 CFR § 9.39(a)(1)(ii) & (2)(iii), § 9.41(e) & (f), § 9.43, § 9.44, § 9.45

### **SECTION B – IDENTIFICATION OF ABNORMAL PRESSURE, TEMPERATURE, OR OTHER HAZARDOUS CONDITIONS ON SITE OR EXPECTED TO BE ENCOUNTERED DURING OPERATIONS**

Identify pressure or temperature conditions that will require special precautions to ensure protection of human health and safety and the environment.

This section normally applies to drilling operations, but may also be a factor for naturally flowing wells, heated process systems, or gas compression operations.

For drilling operations, the operator would identify any overpressured or lost circulation zones that may be encountered while drilling. The operator would then describe measures that will be taken to control formation pressure or lost circulation.

The operator should also note any production processes that involve very high pressures or temperatures.

### **SECTION C – MANAGEMENT MEASURES TO MINIMIZE THE RISKS TO HUMAN HEALTH AND SAFETY AND THE ENVIRONMENT**

Section C should answer the second question: How does the operator plan to manage such substances or conditions to minimize the risks to human health and safety and the environment?

The operator should describe:

- Prediction of the direction, rate of flow, and total quantity of oil, brine, or drilling mud which could be discharged as a result of each major type of failure (e.g. tank failure, flowline failure, loss of well control),
- Design and use of secondary containment (berms, dikes, ring levees, liners, drip pans, curbing, etc.),
- Sumps and collection systems,
- Facility drainage and practices for inspecting, and then discharging, recycling, or disposing of stormwater,
- Frequency of flowline, tank, equipment, and general site inspections by personnel,
- Chemicals and other additives handling and storage practices,
- Fuel and/or crude oil storage and transfer operations,
- Any automatic sensing, alarm, or automatic control systems (including automatic surface or subsurface shut-in valves for flowing wells),
- Personnel training and spill prevention procedures, and
- Site security (e.g., fencing, gates, security guards or other personnel).

In Section C, the operator also describes those good practices for managing wastes.

Section 9.45 of the 9B regulations, Handling of Wastes provides the standard for handling wastes:

“Oilfield brine, and all other waste and contaminating substances must be kept in the smallest practicable area, must be confined so as to prevent escape as a result of percolation, rain, high water or other causes, and such wastes must be stored and disposed of or removed from the area as quickly as practicable in such a manner as to prevent contamination, pollution, damage or injury to the lands, water (surface and subsurface), facilities, cultural resources, wildlife, and vegetation or visitors of the unit.”

Although § 9.45 was written to apply to waste, the same standards apply to handling oil, drilling muds and cuttings, produced fluids, and chemicals, or other substances described in Section A.

The example Spill Control Plan illustrated below demonstrates a good way to present this information.

Readily available emergency and spill response equipment reduces the risks to human health and safety and the environment. This section should include a description of personnel, equipment, and materials needed to quickly control and remove spills. The response equipment and materials should be categorized by what will be maintained;

- At the operation's site,
- On the pumper's (or other personnel's) vehicle, and
- Off-site.

The NPS does not require emergency response equipment to be maintained on location if the threat of a spill is low, secondary containment is adequate, the pumper's vehicle carries a spill kit capable of handling small incidents, and the emergency response times for larger incidents are reasonable.

The steps that an operator might take to minimize risks of high pressure or temperature include use of properly designed equipment and good operating / maintenance practices, but also use of site security measures such as warning signs, fences, and locked gates. Fencing is required where wells and associated facilities are in areas frequented by visitors or wildlife (36 CFR § 9.41(e)).

An example spill control plan is included at the end of this chapter. Tables 4.1 and 4.2 list operating stipulations and recommended mitigation measures that can also be used to design operations that adequately consider spill prevention and control.

## **SECTION D – CONTINGENCY ACTIONS**

Section D answers the last question: What actions will the operator take should an undesirable event occur? In other words, what is the operator's contingency plan for spills, releases, fires, or other undesirable events?

In this section the operator outlines the contingency actions that would be taken in the event of a release of contaminating or toxic substances. Although contingency actions vary based on individual company policies, they should all outline procedures to:

1. Control the source,
2. Secure the site (if necessary),

3. Contain the release,
4. Clean up the release of contaminating or toxic substances, and
5. Report the incident.

Note: Even though the verbal report of a spill event is listed as number 5, the report should be made to the superintendent at the earliest practical time.

### **Spill Reporting**

State and federal regulations require formal notification for certain types of spill or release events. This section of the Spill Control Plan should list the reporting requirements that apply to the facilities covered in the plan of operations. In addition to the reporting requirements of other federal, state, or local authorities, operators in National Parks are required to report spill incidents to the park superintendent or his designated official. The following statement needs to be included in this section of the plan:

"For all releases to the ground of contaminating or toxic substances, [operator] will promptly report the following initial information to [park superintendent]: the time the spill was discovered; the type of product released; the location; estimated spill volume; cause of spill; area covered; estimated rate of release if spill is ongoing; direction of oil movement; description of contaminated area; proximity to surface waters, roads, or trails; weather conditions; what steps are being taken to remedy the situation; and initial response equipment required. For releases in excess of five barrels in the aggregate, [operator] will provide a written report to [park superintendent] within 10 working days of the incident. In addition to the information reported in the initial notification, the written report will include steps that will be or have been taken to prevent recurrence of the incident."

### **Emergency Response**

Emergency response to spill events will focus the safety of personnel and the public as a first priority and then spill control and containment of the release. Once the spill is controlled and the safety of personnel and the public is ensured, the emergency response shifts to containment and minimization of environmental impacts. Cleanup and repair work are typically performed as projects and not as an emergency response. The NPS's role during the initial emergency phases is to receive notification from the operator, evaluate information, and lend appropriate assistance.

When the spill response shifts to containment, the NPS role changes to one of active review and approval. In the case of a spill, the NPS's intent is to minimize the area affected by the release. At the same time, containment efforts should not cause more environmental damage than the spill itself. Therefore, immediate involvement of the NPS in the containment decision-making process is critical if the spilled contaminants have or threaten to move beyond the operation's area.

To clarify the NPS role in emergency response actions, the operator should include the following statement in the contingency plan:

"[Operator] will consult with the [park superintendent] and obtain the [park superintendent's] consent prior to performing ground and vegetative disturbing activities outside the area of operations."

**Clean-up and Removal of Contaminating or Toxic Substances**

For spills that are contained within the approved area of operations, the NPS does not expect cleanup to meet the same standards that will eventually apply to reclamation of the site. 36 CFR § 9.45, Handling of Waste sets the standard for cleanup and removal of the spills within the approved area of operations.

The cleanup standards based on Section 9.45, Handling of Waste are summarized below:

- The spilled materials must be kept in the smallest practical area. This means mixing of contaminated soils with clean soils to achieve lower contaminant concentrations is not an option.
- The spilled materials must be confined to prevent migration of contaminants via percolation, rain, high water, or other means.
- The spilled materials (as well as soils or water contaminated by them) that cannot be recycled to the operations processes are a waste and must be stored and disposed of or removed from the area as quickly as practicable.
- The cleanup and removal of contaminants may not cause additional damage to park resources or threaten human health and safety.

A well-developed and implemented spill control strategy will ease the cleanup of the leaks, spills, and other releases that do occur. Spills will usually be controlled by the secondary containment used in operations. Again, refer to the example Spill Control Plan at the end of this chapter for an understanding of how to document the procedures for cleanup and removal of contaminating or toxic substances.

An operator may use bioremediation or other on site clean-up options, after consultation and agreement with the park superintendent. The superintendent would only allow onsite remediation efforts to disturb additional surface area if there was a clear benefit to park resources over other alternatives. In other words, use of additional surface area to remediate spills onsite is not likely.

Should a spill reach beyond the operator's approved area of operations, the operator will need to take actions to restore the disturbed area to the natural conditions and processes that existed before the spill.

Reclamation standards require removing or neutralizing any contaminating substances (36 CFR § 9.39(a)(2)(iii)). Neutralization of contamination means that contaminant concentrations will be reduced in soils to a condition that will not adversely affect, injure, or damage federally-owned or controlled lands, waters, and other resources, provides for the safe movement of native wildlife, and which does not jeopardize visitor safety or public use of the park (36 CFR § 9.39(b)). If warranted, the operator will need to test soils to verify that contaminating substances have been removed or neutralized.

**SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC)  
PLANS**

If determined to be adequate by the superintendent, a Spill Prevention Control and Countermeasure Plan, approved under 40 CFR Part 112, may be used to satisfy most of the Spill Control Plan requirements.

The SPCC addresses facilities where oil spills would pollute or threaten to pollute waters of the United States. Many facilities in parks will meet the criteria for having to have an approved SPCC plan. If this is the case, a properly prepared SPCC plan will satisfy most of the Contaminating or Toxic Substance Spill Control Plan requirements. In addition to the SPCC plan the operator still needs to provide the following:

1. The listing of contaminating or toxic substances along with their MSDS's as described in Section A above.
2. The statements supporting NPS spill reporting requirements as follows:

"For all releases to the ground of contaminating or toxic substances, [operator] will promptly report the following initial information to [park superintendent]: the time the spill was discovered; the type of product released; the location; estimated spill volume; cause of spill; area covered; estimated rate of release if spill is ongoing; direction of oil movement; description of contaminated area; proximity to surface waters, roads, or trails; weather conditions; what steps are being taken to remedy the situation; and initial response equipment required. For releases in excess of five barrels in the aggregate, [operator] will provide a written report to [park superintendent] within 10 working days of the incident. In addition to the information reported in the initial notification, the written report will include steps that will be or have been taken to prevent recurrence of the incident."

## SAMPLE SPILL CONTROL PLAN

The following example “Contaminating or Toxic Substance Spill Control Plan” (Spill Control Plan) can be used as a template by an operator when preparing a Spill Control Plan for a proposed plan of operations.

In this example, Tidy Oil Company has just acquired some oil and gas operations inside a national park. The operations consist of two oil wells on pumpjacks, and a tank battery that includes separators, two 1000-barrel oil tanks, and one 1000-barrel saltwater tank. The oil and brine is trucked and gas that is not used as lease fuel is flared. Tidy also plans to drill an additional development well, which it expects to be a flowing oil and gas well with its own separation and storage facility.

In the attached Spill Control Plan, the NPS includes **NOTES** (shown in **bold**) to help explain the plan content. The **NOTES** would not be included in the actual spill control plan.

### SECTION A – IDENTIFICATION OF CONTAMINATING OR TOXIC SUBSTANCES USED ON SITE OR EXPECTED TO BE ENCOUNTERED DURING OPERATIONS

During the operations of producing oil and gas from the existing and drilling proposed wells, the substances listed in Table 10-1 are used or expected to be encountered. Table 10-1 lists each substance by generic product name, its use in operations, its hazardous content, and its hazardous effect. A copy of the Material Safety Data Sheet (MSDS) for each item listed in Table 10-1 is also attached. The MSDS lists proper safety procedures and protective devices for using each product as well as first aid information in the event of exposure.

### SECTION B – IDENTIFICATION OF ABNORMAL PRESSURE, TEMPERATURE, OR OTHER HAZARDOUS CONDITIONS ON SITE OR EXPECTED TO BE ENCOUNTERED DURING OPERATIONS

Tidy Oil does not expect any abnormal pressures, temperatures, or other hazardous conditions that require any special precautions during the course of drilling and production operations.

Tidy’s existing wells are no longer capable of flowing naturally. The proposed Tidy Well No. 3 is expected to flow naturally at first, but will eventually require artificial lift. Bottomhole pressures ranging from 1500 to 2200 psi and a bottomhole temperature of 130° F are normal for a partially depleted reservoir at 5000 feet depth. Surface operating pressures are expected to be less than 500 psi. Gas not used as lease fuels is compressed to 300 psi for delivery to the AAA Pipeline.

Hydrogen sulfide gas, overpressured zones, or extreme lost circulation zones are not known to exist in the area and are not expected to be encountered while drilling the Tidy No. 3 well.

### SECTION C – MANAGEMENT MEASURES TO MINIMIZE THE RISKS TO HUMAN HEALTH AND SAFETY AND THE ENVIRONMENT

#### Drilling Operations

Tidy Oil has a number of strategies to prevent and contain contaminating substance spills during drilling operations. Site construction (as described in detail in Section V., Description of Operations) includes construction of a ditch and ring levee around the entire drill site. The area



## CHAPTER 11 - SPILL CONTROL PLAN

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underneath the drilling rig, pumps, jetting pits, mixing tanks, pipe racks, compressors, generator house, BOP accumulator, tool houses, and fuel and chemical storage is lined with 18 mil impervious PVC liner. After setting the conductor casing, the cellar will be sealed on the bottom with cement and around the sides with epoxy and corrugated steel.

Any rainwater, rig wash, and spilled liquids within the lined area will flow to the cellar where they can be collected for recycling into the mud system or disposal. Rainwater that collects outside the lined area will be visually inspected for sheen and tested for conductivity prior to supervised discharge. Any contaminated stormwater will be recycled into the mud system or vacuumed up for disposal.

Leak sources on the drill site include mud tanks, diesel fuel tank, chemical and lubricating oil drums, piping, machinery, hydraulic systems, mud additives, and the well itself. All of these items are maintained within a lined area as previously described. Other than a complete loss of well control, the largest spill potential would be the rupture of a mud storage tank (300 barrels). The capacity of the diesel storage tank is 180 barrels. The lined area could contain a spill of 1200 barrels. Any spills within the lined area would be contained and picked up.

The possibility of a well blowout is extremely small. Open flow potentials of wells in the field are less than 1000 barrels of oil per day. The area enclosed by the ditch and ring levee could hold up to 18,000 barrels of fluid. Tidy would respond as quickly as possible to control a blowout. A spill that escaped the drilling location would move to the northeast towards Fish Creek, which is about 3000 feet from the drill site. Should it become necessary, Tidy would consult with the superintendent to build berms to prevent a catastrophic spill from reaching the creek. A topographic map is included in Section II of the Plan of Operations.

Other preventive practices to be used during drilling include:

- Employees and contractors will be properly trained to reduce the number of human errors that often cause spills.
- Visual inspection during rig-up to assure the satisfactory condition of storage tanks, piping, fittings, and other rig equipment that normally hold contaminating substances such as drilling mud, oil, fuel, lubricating oil, hydraulic fluid, etc.
- During operations, employees and contractors will be observant for signs of spills or leakage and the need for equipment maintenance.
- The drill rig is manned by personnel trained in well control.
- Blowout preventers will be installed after setting the surface casing. All blowout prevention equipment is visually inspected daily. The blind and pipe rams are function tested daily or as operations permit. The rams and annular preventer are pressure tested weekly.
- Equipment oil and coolant changes will be performed prior to mobilizing to location rather than on-site.
- Less toxic substances will be substituted for more toxic substance where practical.
- Secondary containment areas will be inspected daily for integrity.
- Placement of temporary liners under service equipment such as logging units, cementing equipment, etc.

- A security guard will be posted where the well access road leaves the public park road to keep visitors from entering the location and to direct rig traffic on the single lane road.

The following cleanup equipment will be available at the drill site for immediate use by on-site personnel in response to small spills, and for initial spill containment and cleanup efforts in response to larger spills that may require additional contractor assistance:

- Two 100-foot containment booms,
- 10 bales absorbent pads,
- 10 bales absorbent sweep,
- One 2-inch pump with hose,
- One case of disposal bags, and
- Assortment of shovels, rakes, etc.

Also, a front-end loader is kept on location during drilling operations and is available if needed to contain a spill.

### **Production Operations**

Tidy Oil has a number of strategies to prevent and contain contaminating substance spills during production operations.

Leak sources that are common to each of the production sites are the wellheads, flowlines, separation equipment, storage tanks, and the chemical storage and injection systems.

The greatest leak potential would be the rupture of a full 1000-barrel storage tank. All storage tanks have secondary containment within bermed areas. In the event of a tank failure, free liquids would be vacuumed up and returned to storage tanks or disposed of offsite.

Should Tidy Oil No. 3 become a producer, separation and storage facilities will be located within a lined, bermed area as described in Section V, Description of Operations. The berm will be designed to hold 1500 barrels (150% of the largest tank). If Tidy No. 3 is completed as a flowing well, the wellhead will include an automatic shutoff wing valve. The valve will automatically close off production from the well if there is a loss of flowline pressure.

Tidy Oil No. 2 and 3 are no longer capable of natural flow. Each well produces about 50 barrels of oil and 200 barrels of salt water per day on pump jack. The Tidy No. 2 and 3 tanks are also within a bermed area that has a compacted clay bottom. Outside the bermed areas, the largest conceivable spill from a well would be 50 barrels of oil and 200 barrels of saltwater resulting from a flowline break that goes undetected for a 24-hour period. The ditch and ring levee configuration around each well is capable of holding at least one week's production.

Rainwater that collects in bermed areas or in the drip pans will be inspected for sheen and tested for conductivity prior to discharge. All stormwater discharges are supervised and recorded. Any stormwater that is found to be contaminated will be pumped into the brine storage tank and ultimately disposed of at an approved facility outside of the park.

Other preventive practices to be used during drilling include:

## CHAPTER 11 - SPILL CONTROL PLAN

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- Secondary containment under chemical bulk storage containers is provided by drip pans. The chemical pumps are also located beneath the chemical tank on the drip pans.
- Loading connections for the oil and brine tanks are located within the bermed areas. Drip basins are provided under each connection point. Any oil or brine leaked into the drip basin during loading operation is removed promptly.
- Training on spill prevention, control, and cleanup measures is conducted for each employee on an annual basis. Employees and contractors are trained on the specifics of this Spill Control Plan.
- The gauger visually inspects the wellhead, piping, valves, tanks, vessels, and chemical injection system on a daily basis for signs of leakage or maintenance needs.
- The gauger also walks the parameter of each location at least weekly or after heavy rains and checks the ditch for accumulation of anything other than rainwater.
- The gauger inspects secondary containment areas for integrity daily.
- Inspect all oil and brine tanks for signs of excessive external corrosion which may lead to tank failure.
- Inspect base of tanks for signs of bottom leaks.
- Flowlines to Tidy No. 1 and No. 2 are walked every 6 months or immediately if there is any evidence of a flowline leak.
- Inspect valves for proper position and locks, if applicable.
- The existing tank battery is fenced with a locked gate, as are the pump jacks at the Tidy No. 1 and 2 wells. If Tidy No. 3 becomes a producer, a fence will be constructed around the well and production facilities.

No emergency response equipment will be kept on location during production operations. The gauger's truck is equipped with one bundle of absorbent pads, two 10-foot absorbent booms, a hand-held fire extinguisher, shovels, rake, and an assortment of hand tools.

### SECTION D – CONTINGENCY ACTIONS

In the event of a spill, Tidy Oil's actions will focus on:

1. Controlling the source to prevent further spillage.
2. Securing the site if necessary.
3. Containing the spilled material to the smallest practical area.
4. Cleaning up the spill.
5. Reporting the spill to appropriate agencies.

#### Spill Reporting

Although reporting the spill is listed as #5 above, Tidy Oil will provide the superintendent a verbal notification of a spill event at the earliest practical time. The company supervisor will determine from onsite personnel the following information and report it to the superintendent:

- The location of the spill and the time it was discovered;
- The type of product released;

- Estimated spill volume and area covered;
- Description of contaminated area;
- Estimated rate of release if spill is ongoing;
- Cause of spill;
- Direction of oil movement;
- Proximity to surface waters, roads, or trails;
- Weather conditions;
- What steps are being taken to remedy the situation; and,
- Initial response equipment required.

For releases in excess of five barrels in the aggregate, Tidy Oil will provide a written report to the superintendent within 10 working days of the incident. In addition to the information reported in the initial notification, the written report will include steps that will be or have been taken to prevent recurrence of the incident.

**NOTE: State and federal regulations require formal notification for certain types of spill or release events. The operator should list those agencies here along with the reporting criteria.**

### **Spill Response**

The largest reasonable anticipated spill events will be contained within bermed areas or at least contained to the location by the surrounding ditch and ring levee.

In the event a spill is encountered, initial response actions will be aimed at controlling the spill, then containing spilled materials. The gauger or other person(s) onsite will immediately assess the situation and take steps to control the source of the spill (if it can be done safely) by shutting valves, shutting down equipment, or closing in wells as needed.

For small spills, onsite personnel will use equipment on hand to contain the spread of the spill. This would typically involve placing absorbent pads or booms, or by constructing a retaining dike from dirt, boards, synthetic absorbents, hay, straw, etc. Small spills will be picked up immediately with absorbent materials. All contaminated cleanup materials will be stored in impermeable, weatherproof containers until removed from the site. All contaminated materials will be disposed of according to state and federal guidelines.

For larger spills, the company supervisor will be notified of the spill. For drilling operations, the company representative on location will direct response actions to spill events. The company supervisor will direct actions to immediately isolate and shut off source of the material being spilled (if it can be done safely). The supervisor will assess containment needs and call out contract equipment and services as determined necessary. Onsite personnel will use equipment and materials on hand to slow the spread of oil or contaminants until additional equipment/services can reach the site.

In the rare event that spilled materials escape from the location, Tidy Oil will consult with the park superintendent and obtain the superintendent's consent prior to mobilizing equipment that may have lingering impacts to natural resources outside the area of operations. In the event

## CHAPTER 11 - SPILL CONTROL PLAN

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immediate response is necessary, approval will be sought via telephone conversation with the superintendent or designated representative.

If a tank truck is involved in a spill incident outside the approved area of operations, but inside the park, Tidy Oil will respond in the same manner as spills within the approved area of operations. The county sheriff's department will be contacted to help control traffic if a tank truck experiences a spill outside of Tidy Oil's area of operations.

At the same time steps are being taken to control and contain the spill, the supervisor will determine what steps may be needed to protect park visitors. Such actions might include locking the gate to the location or blocking the private lease access route from the main park road. Other than the park road, Tidy Oil's operations are not near any areas used by visitors on a regular basis. The only time visitor evacuation of the immediate area might be necessary would be during uncontrolled escape of oil and gas from a well blowout. Tidy Oil would request assistance from the park and local law enforcement as needed to close the park road for all except emergency response personnel.

### **Cleanup/Removal of Spill**

Cleanup and removal of spills within the containment areas will be performed using accepted industry practices. Such practices include the pickup of free liquids with vacuum equipment, application of absorbent booms, materials, and pads; removal of contaminated wellpad material, and replacement with clean wellpad material. In place treatment of contaminated wellpad material could be used as an option to offsite disposal if approved by the superintendent.

Tidy will not mobilize response or cleanup equipment (that could cause damage to park resources) outside the approved area of operations without first obtaining consent of the superintendent.

All contaminated cleanup materials will be stored in impermeable, weatherproof containers and removed from the site as early as practical. All contaminated materials will be disposed of according to state and federal guidelines.

Clean up and removal of spills within Tidy's approved area of operations will meet the standards of 36 CFR § 9.45, Handling of Waste.

Should a spill occur or reach beyond Tidy Oil's approved area of operations, the operator will take actions to restore the disturbed area to the natural conditions and processes that existed before the spill. Cleanup operations will be the same as discussed above for clean up of spills within containment areas except:

1. Tidy Oil will consult with the superintendent and obtain the superintendent's consent prior to mobilizing equipment that may have ongoing impacts to natural resources, and
2. Restoration of the affected area will be performed in consultation with the superintendent and meet the same standards as the Reclamation Plan provided in Section VII of this plan of operations.

**Table 10-1. Contaminating and Toxic Substances**

<b>DRILLING OPERATIONS</b>				
<b>Product Name</b>	<b>Hazardous Content</b>	<b>Hazardous Effect</b>	<b>Use</b>	<b>MSDS Attached</b>
Gel (Wyoming Bentonite)	Silica (2-6%)	Carcinogen, Irritant	Mud Additive	Yes
Barite	Silica (2-6%)	Carcinogen, Irritant	Mud Weighting	Yes
Caustic Soda	Sodium Hydroxide	Corrosive	Mud Additive	Yes
Poly-Plus (Liquid)	Petroleum Distillates	Irritant, Toxic	Mud Additive	Yes
PolyPac	Cellulose	Irritant	Mud Additive	Yes
Lignite	Silica (3%)	Carcinogen, Irritant	Mud Additive	Yes
Lime	Calcium Hydroxide	Moderately Caustic Irritant	Mud Additive	Yes
Soda Ash	Sodium Carbonate	Irritant	Mud Additive	Yes
Cottonseed Hulls	None	Allergen	Lost Circulation Material	Yes
Cement	Portland Cement	Irritant	Cementing	Yes
Diesel	Diesel	Fire Hazard, Irritant, Toxic	Fuel	Yes
<b>PRODUCTION OPERATIONS</b>				
<b>Product Name</b>	<b>Hazardous Content</b>	<b>Hazardous Effect</b>	<b>Use</b>	<b>MSDS Attached</b>
Natural Gas	Methane, Ethane, etc.	Extreme Fire Hazard, Asphyxiant	Produced from wells	Yes
Crude Oil	Mixture of Paraffins, Naphthenes, and Aromatics	Fire Hazard, Irritant, Toxic	Produced from wells	Yes
Demulsifier	Blend of sulfanates, oxyalkylated phenolic resins, and alkanolamines in aromatic and alcohol solvent	Irritant, toxic	Production stream additive	Yes



## **CHAPTER 12**

### **LIABILITY OF OPERATORS, CONTRACTORS AND SUBCONTRACTORS**

Any oil and gas operation that requires access on, across or through federally-owned or controlled lands or waters would be subject to the NPS's statutory mandates, regulatory provisions, policies, and Executive Orders. The NPS regulatory requirements establish standards for the conduct of oil and gas activities so that park managers can ensure that those activities are conducted in a manner that protects park resources and values, and ensures that these activities do not impair park resources and values.

#### **36 CFR PART 9 SUBPART B**

Operators will be held fully accountable for their contractor's or subcontractor's compliance with the requirements of the approved plan of operations (36 CFR § 9.41(g)). Further, the operator shall be held liable for any damages to federally-owned or controlled lands, water, or resources resulting from his failure to comply with either his plan of operations, or where operations are continued pursuant to § 9.33, failure to comply with the applicable permit or, where operations are temporarily approved under §9.38, failure to comply with the terms of that approval (36 CFR § 9.51(a)). Undertaking any operations within the boundaries of any unit in violation of the 36 CFR 9B regulations shall be deemed a trespass against the United States and shall be cause for revocation of approval of the plan of operations (36 CFR § 9.51(c)).

#### **PARK SYSTEM RESOURCE PROTECTION ACT**

The Park System Resource Protection Act (16 U.S.C. §19jj) makes any person who destroys, causes the loss of, or injures any park system resource strictly liable to the United States for response costs and for damages resulting from such destruction, loss, or injury. A park system resource includes any living or non-living resource located within the boundaries of a NPS unit, except for resources owned by a non-federal entity. Because the statute imposes strict liability the only defenses arise when an act of god or war caused the damage, a third party who constituted neither an employee or nor an agent of the owner/operator caused solely the damage, or an activity authorized by federal or state law caused the damage.

The Act authorizes the Secretary of the Interior to request the Department of Justice to file a civil action for the costs of replacing, restoring or acquiring the equivalent of a park system resource; the value of any loss of use pending its restoration; replacement, or acquisition, the cost of damage assessments; and the cost of response including actions to prevent, to minimize, or to abate injury.

The Park System Resource Protection Act applies to nonfederal oil and gas activities on National Park System units. Operators need to ensure that they operate within the specifications of their approved 9B plan, comply with all other relevant legal requirements, and take precautions to avoid actions that may damage park system resources.



## CHAPTER 12 - LIABILITY

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The Act provides comprehensive definitions for both response costs and damages.

**Response costs** "means the costs of actions taken by the Secretary of the Interior to prevent or minimize destruction or loss of or injury to park system resources; or to abate or minimize the imminent risk of such destruction, loss, or injury; or to monitor ongoing effects of incidents causing such destruction, loss or injury."

**Damages** "includes the following:

1. Compensation for -
  - A(i). the cost of replacing, restoring, or acquiring the equivalent of a park system resource; and
  - A(ii). the value of any significant loss of use of a park system resource pending its restoration or replacement or the acquisition of an equivalent resource; or
  - B. the value of the park system resource in the event the resource cannot be replaced or restored.
2. The cost of damage assessments under" the Act.

The above provisions embody a very broad articulation of the scope of liability that attaches to private activities in parks. In addition, under § 19jj-1(d), Congress makes clear that the provisions of the Act are "in addition to any other liability which may arise under federal or state law." With respect to nonfederal oil and gas activities in parks in general, an operator's liability for damages to park resources may easily exceed the amount of the bonds set under 36 CFR §9.48(d). Under 16 U.S.C. § 19jj, the NPS can recover the costs associated with such damages.

## OTHER APPLICABLE LAWS AND REGULATIONS

Specific liability provisions for protection of cultural resources is provided for under 36 CFR 9B and 43 CFR 3. Under these provisions, the operator shall not injure, alter, destroy, or collect any site, structure, object, or other value of historical, archeological, or cultural scientific importance. Violations shall be punishable by law under trespass regulations, the Antiquities Act, and the Archeological Resources Protection Act for fines and possible costs for any cultural resources damaged by vehicular traffic or collection.

Protection of threatened and endangered species and their habitat is provided for under the Endangered Species Act (16 U.S.C. §§ 1531-1544 and implementing regulations at 50 CFR Parts 10, 17, 23, 81, 217, 222, 225 402, and 450; and 36 CFR Part 13). Harming an endangered species without an authorization (e.g. Section 7 Incidental Take Permit) would result in substantial fines.

The NPS will take affirmative and aggressive action to ensure that all NPS costs and damages associated with the release of contaminants are borne by those responsible for the contamination of NPS property." (USDI, NPS 2001, 9.1.6.2). Liability provisions for community right-to-know, and rapid response and cleanup of releases of oil, gas, or contaminating and hazardous substances are required by the following list of regulations, executive orders, and federal Laws. A summary of each of these is provided in Appendix B.

- NPS Nonfederal Oil and Gas Rights regulations - 36 CFR §§ 9.31(o) and § 9.45;

- Park System Resource Protection Act -16 U.S.C. § 19jj;
- Resource Conservation and Recovery Act - 42 U.S.C. §§ 6901 *et seq.*); 40 CFR Parts 240-280; 49 CFR Parts 171-179;
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended - 42 U.S.C. §§ 9601-9675); 40 CFR Parts 279, 300, 302, 355, and 373;
- Executive Order 12082 – Federal Compliance with Pollution Control Standards - 3 CFR 1978 Comp. p. 243, amended by Executive Order 12580 - 3 CFR 1987 Comp. p. 193;
- Oil Pollution Act - 33 U.S.C. §§ 2701-2761;
- Pipeline Safety Act of 1992 - 49 U.S.C. § 60101 *et seq.*); 49 CFR Subtitle B, Ch 1, Parts 190-199; Federal Water Pollution Control Act of 1972 - 33 U.S.C. §§ 1251*et seq.*; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328; and
- Spill Prevention Control and Countermeasure Plan - 40 CFR Part 112.



## APPENDIX A

### 36 CFR 9 SUBPART - B NON-FEDERAL OIL AND GAS RIGHTS

AUTHORITY: Act of August 25, 1916, 39 Stat. 535 (16 U.S.C. 1, et seq.); and the acts establishing the units of the National Park System, including but not limited to: Act of April 25, 1947, 61 Stat. 54 (16 U.S.C. 241, et seq.); Act of July 2, 1958, 72 Stat. 285 (16 U.S.C. 410, et seq.); Act of October 27, 1972, 86 Stat. 1312 (16 U.S.C. 460dd, et seq.); Act of October 11, 1974, 88 Stat. 1256 (16 U.S.C. 698-698e); Act of October 11, 1974, 88 Stat. 1258 (16 U.S.C. 698f-698m); Act of December 27, 1974, 88 Stat. 1787 (16 U.S.C. 460ff et seq.).

SOURCE: 43 FR 57825, Dec. 8, 1978, unless otherwise noted.

#### **§ 9.30 Purpose and scope.**

(a) These regulations control all activities within any unit of the National Park System in the exercise of rights to oil and gas not owned by the United States where access is on, across or through federally owned or controlled lands or waters. Such rights arise most frequently in one of two situations: (1) When the land is owned in fee, including the right to the oil and gas, or (2) When in a transfer of the surface estate to the United States, the grantor reserved the rights to the oil and gas. These regulations are designed to insure that activities undertaken pursuant to these rights are conducted in a manner consistent with the purposes for which the National Park System and each unit thereof were created, to prevent or minimize damage to the environment and other resource values, and to insure to the extent feasible that all units of the National Park System are left unimpaired for the enjoyment of future generations.

These regulations are not intended to result in the taking of a property interest, but rather to impose reasonable regulations on activities which involve and affect federally-owned lands.

(b) Regulations controlling the exercise of minerals rights obtained under the Mining Law of 1872 in units of the National Park System can be found at 36 CFR Part 9, Subpart A. In area where oil and gas are owned by the United States, and leasing is authorized, the applicable regulations can be found at 43 CFR, Group 3100.

(c) These regulations allow operators the flexibility to design plans of operations only for that phase of operations contemplated. Each plan need only describe those functions for which the operator wants immediate approval. For instance, it is impossible to define, at the beginning of exploratory activity, the design that production facilities might take. For this reason, an operator may submit a plan which applies only to the exploratory phase, allowing careful preparation of a plan for the production phase after exploration is completed. This allows for phased reclamation and bonding at a level commensurate with the level of operations approved. However, it must be noted that because of potential cumulative impacts, and because of qualitative differences in the nature of the operations, approval of a plan of operations covering one phase of operations does not guarantee later approval of a plan of operations covering a subsequent phase.

[43 FR 57825, Dec. 8, 1978, as amended at 44 FR 37914, June 29, 1979]

**§9.31 Definitions.**

The terms used in this Subpart shall have the following meanings:

- (a) *Secretary.* The Secretary of the Interior.
- (b) *Director.* The Director of the National Park Service or his designee.
- (c) *Operations.* All functions, work and activities within a unit in connection with exploration for and development of oil and gas resources, the right to which is not owned by the United States, including: gathering basic information required to comply with this subpart, prospecting, exploration, surveying, preproduction development and production; gathering, onsite storage, transport or processing of petroleum products; surveillance, inspection, monitoring, or maintenance of equipment; reclamation of the surface disturbed by such activities; and all activities and uses reasonably incident thereto performed within a unit, including construction or use of roads, pipelines, or other means of access or transportation on, across, or through federally owned or controlled lands and waters, regardless of whether such activities and uses take place on Federal, State or private lands.
- (d) *Operator.* A person conducting or proposing to conduct operations.
- (e) *Person.* Any individual, firm, partnership, corporation, association, or other entity.
- (f) *Superintendent.* The Superintendent, or his designee, of the unit of the National Park System containing lands subject to the rights covered by these regulations.
- (g) *Commercial Vehicle.* Any motorized equipment used in direct or indirect support of operations.
- (h) *Unit.* Any National Park System area.
- (i) *Owner.* The owner, or his legal representative, of the rights to oil and gas being exercised.
- (j) *Designated Roads.* Those existing roads determined by the Superintendent in accordance with 36 CFR 1.5 and § 4.19 to be open for the use of the general public or for the exclusive use of an operator.
- (k) *Oil.* Any viscous combustible liquid hydrocarbon or solid hydrocarbon substance easily liquifiable on warming which occurs naturally in the earth, including drip gasoline or other natural condensates recovered from gas without resort to manufacturing process.
- (l) *Gas.* Any fluid, either combustible or noncombustible, which is produced in a natural state from the earth and which maintains a gaseous or rarefied state at ordinary temperature and pressure conditions.
- (m) *Site.* Those lands or waters on which operations are to be carried out.
- (n) *Contaminating substances.* Those substances, including but not limited to, salt water or any other injurious or toxic chemical, waste oil or waste emulsified oil, basic sediment, mud with injurious or toxic additives, or injurious or toxic substances produced or used in the drilling, development, production, transportation, or on-site storage, refining, and processing of oil and gas.

(o) *Statement for Management.* A National Park Service planning document used to guide short- and long-term management of a unit; to determine the nature and extent of planning required to meet the unit's management objectives; and, in the absence of more specific planning documents, to provide a general framework for directing park operations and communicating park objectives to the public.

[43 F R 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979, as amended at 60 FR 55791, Nov. 3 1995; 62 FR 30234, June 3, 1997]

### **§ 9.32 Access.**

(a) No access on, across or through lands or waters owned or controlled by the United States to a site for operations will be granted except for operations covered by § 9.33 and, except as provided by § 9.38, until the operator has filed a plan of operations pursuant to § 9.36 and has had the plan of operations approved in accordance with § 9.37. An approved plan of operations serves as the operator's access permit.

(b) No operations shall be conducted on a site within a unit, access to which is on, across or through federally owned or controlled lands or waters except in accordance with an approved plan of operations, the terms of § 9.33 or approval under § 9.38.

(c) Any operator intending to use aircraft of any kind for access to a federally-owned or controlled site must comply with these regulations. Failure of an operator to receive the proper approval under these regulations prior to using aircraft in this manner is a violation of both these regulations and 36 CFR 2.17.

(d) No access to a site outside a unit will be permitted across unit lands unless such access is by foot, pack animal, or designated road. Persons using designated roads for access to such a site must comply with the terms of § 9.50 where applicable.

(e) Any operator on a site outside the boundaries of a unit must comply with these regulations if he is using directional drilling techniques which result in the drill hole crossing into the unit and passing under any land or water the surface of which is owned by the United States. Except, that the operator need not comply in those areas where, upon application of the operator or upon his own action, the Regional Director is able to determine from available data, that such operations pose no significant threat of damage to park resources, both surface and subsurface, resulting from surface subsidence fracture of geological formations with resultant fresh water aquifer contamination, or natural gas escape, or the like.

### **§ 9.33 Existing operations.**

(a) Any person conducting operations on January 8, 1979 in accordance with a Federal or State issued permit may continue to do so as provided by this section. After expiration of such existing permits no operations shall be conducted except under an approved plan of operations, unless access is granted by the Regional Director under § 9.38.

(1) All Federal special use permits dealing with access on, across or through lands or waters owned or controlled by the United States to a site for the conduct of operations within any unit issued prior to January 8, 1979 shall expire according to their terms and shall not be renewed, unless by the terms of the existing permit it must be renewed.

(2) All operations on a site in a unit access to which is on, across, or through federally owned or controlled lands or waters conducted pursuant to a valid State access permit may be continued for the term of that permit, exclusive of any renewal period whether mandatory or discretionary, if conducted in accordance with the permit.

(b) Any person conducting operations on January 8, 1979 in a unit where Federal or State permits were not required prior to January 8, 1979 may continue those operations pending a final decision on his plan of operations; *Provided, That:*

(1) The operator (within thirty (30) days of January 8, 1979), notifies the Superintendent in writing of the nature and location of the operations; and

(2) Within sixty (60) days after such notification, the operator submits, in accordance with these regulations, a substantially complete proposed plan of operations for those operations;

(3) Failure to comply with § 9.33(b) (1) and (2) shall constitute grounds for the suspension of operations.

(c) At any time when operations which are allowed to continue under § 9.33 (a) and (b) pose an immediate threat of significant injury to federally owned or controlled lands or waters, the Superintendent shall require the operator to suspend operations immediately until the threat is removed or remedied. The Superintendent must, within five (5) days of this suspension notify the operator in writing of the reasons for the suspension and of his right to appeal the suspension under § 9.49.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

**§ 9.34 Transfers of interest.**

(a) Whenever an owner of rights being exercised under an approved plan of operations sells, assigns, bequeaths, or otherwise conveys all or any part of those rights, he, his agent, executor, or representative must notify the Superintendent within sixty (60) days of the transfer of: the site(s) involved; the name and address of the person to whom an interest has been conveyed; and a description of the interest transferred. Failure to so notify the Superintendent shall render the approval of any previously approved plan of operations void.

(b) The transferring owner shall remain responsible for compliance with the plan of operations and shall remain liable under his bond until such time as the Superintendent is notified of the transfer in accordance with paragraph (a). At that time the Superintendent will prohibit the new owner from operating until such time as the new owner has filed with the Superintendent: (1) A statement ratifying the existing plan of operations and stating his intent to be bound thereby, or a new plan of operations, and (2) a suitable substitute performance bond which complies with the requirements of § 9.48.

**§ 9.35 Use of water.**

No operator may use for operations any water from a point of diversion which is within the boundaries of any unit unless authorized in writing by the Regional Director. The Regional Director shall not approve a plan of operations requiring the use of water from such source unless the operator shows either that his right to the use of the water is superior to any claim of the United States to the water, or where the operator's claim to the water is subordinate to that of the United States that the removal of the water from the water system will not damage the unit's resources. In either situation, the operator's use of water must comply with appropriate State water laws.

**§ 9.36 Plan of operations.**

(a) The proposed plan of operations shall include, as appropriate to the proposed operations, the following:

(1) The names and legal addresses of the following persons: The operator and the owner(s) or lessee(s) (if rights are State-owned) other than the operator;

(2) Copy of the lease, deed, designation of operator, or assignment of rights upon which the operator's right to conduct operations is based;

(3) A map or maps showing the location of the perimeter of the area where the operator has the right to conduct operations, as described in § 9.36(a)(2), referenced to the State plane coordinate system or other public land survey as acceptable to the Superintendent;

(4) A map or maps showing the location, as determined by a registered land surveyor or civil engineer, of a point within a site of operations showing its relationship to the perimeter of the area described in § 9.36(a)(2) and to the perimeter of the site of operations; the location of existing and proposed access roads or routes to the site; the boundaries of proposed surface disturbance; the location of proposed drilling; location and description of all surface facilities including sumps, reserve pits and ponds; location of tank batteries, production facilities and gathering, service and transmission lines; wellsite layout; sources of construction materials such as fill; and the location of ancillary facilities such as camps, sanitary facilities, water supply and disposal facilities, and airstrips. The point within the site of operations identified by registered land surveyor or civil engineer shall be marked with a permanent ground monument acceptable to the Superintendent, shall contain the point's State plane coordinate values, and shall be placed at least to an accuracy of third order, class I, unless otherwise authorized by the Superintendent;

(5) A description of the major equipment to be used in the operations, including a description of equipment and methods to be used for the transport of all waters used in or produced by operations, and of the proposed method of transporting such equipment to and from the site;

(6) An estimated timetable for any phase of operations for which approval is sought and the anticipated date of operation completion;

(7) The geologic name of the surface formation;

(8) The proposed drilling depth, and the estimated tops of important geologic markers;

(9) The estimated depths at which anticipated water, brines, oil, gas, or other mineral bearing formations are expected to be encountered;



## APPENDIX A – 36 CFR 9B REGULATIONS

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(10) The nature and extent of the known deposit or reservoir to be produced and a description of the proposed operations, including:

(i) The proposed casing program, including the size, grade, and weight of each string, and whether it is new or used;

(ii) The proposed setting depth of each casing string, and the amount of type of cement, including additives, to be used;

(iii) The operator's minimum specifications for pressure control equipment which is to be used, a schematic diagram thereof showing sizes, pressure ratings, and the testing procedures and testing frequency;

(iv) The type and characteristics of the proposed circulating medium or mediums to be employed for rotary drilling and the quantities and types of mud and weighting material to be maintained;

(v) The testing, logging, and coring programs to be followed;

(vi) Anticipated abnormal pressures or temperatures expected to be encountered; or potential hazards to persons and the environment such as hydrogen sulfide gas or oil spills, along with plans for mitigation of such hazards;

(11) A description of the steps to be taken to comply with the applicable operating standards of § 9.41 of this subpart;

(12) Provisions for reclamation which will result in compliance with the requirements of § 9.39:

(13) A breakdown of the estimated costs to be incurred during the implementation of the reclamation plan;

(14) Methods for disposal of all rubbish and other solid and liquid wastes, and contaminating substances;

(15) An affidavit stating that the operations planned are in compliance with all applicable Federal, State and local laws and regulations

(16) Background information, including:

(i) A description of the natural, cultural, social and economic environments to be affected by operations, including a description and/or map(s) of the location of all water, abandoned, temporarily abandoned, disposal, production, and drilling wells of public record within a two-mile radius of the proposed site. Where such information is available from documents identified in § 9.36(d), specific reference to the document and the location within the document where such information can be found will be sufficient to satisfy this requirement

(ii) The anticipated direct and indirect effects of the operations on the unit's natural, cultural, social, and economic environment;

(iii) Steps to be taken to insure minimum surface disturbance and to mitigate any adverse environmental effects, and a discussion of the impacts which cannot be mitigated

- (iv) Measures to protect surface and subsurface waters by means of casing and cement, etc.
  - (v) All reasonable technologically feasible alternative methods of operations their costs, and their environmental effects, and
  - (vi) The effects of the steps to be taken to achieve reclamation
  - (17) Any other facets of the proposed operations which the operator wishes to point out for consideration; and
  - (18) Any additional information that is required to enable the Superintendent to establish whether the operator has the right to conduct operations as specified in the plan of operations; to effectively analyze the effects that the operations will have on the preservation, management and public use of the unit, and to make a recommendation to the Regional Director regarding approval or disapproval of the plan of operations and the amount of the performance bond to be posted.
- (b) Where any information required to be submitted as part of a proposed plan of operations has been submitted to the Superintendent in substantially the same form in a prior approved plan of operations, a specific cross-reference to that information contained in the prior approved plan of operations will be sufficient to incorporate it into the proposed plan and will satisfy the applicable requirement of this section.
- (c) Information and materials submitted in compliance with this section will not constitute a plan of operations until information required by § 9.36(a) (1) through (18), which the Superintendent determines as pertinent to the type of operations proposed, has been submitted to and determined adequate by the Regional Director.
- (d) In all cases the plan of operations must consider and discuss the unit's Statement for Management and other planning documents as furnished by the Superintendent, and activities to control, minimize or prevent damage to the recreational, biological physical, scientific, cultural, and scenic resources of the unit, and any reclamation procedures suggested by the Superintendent.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

**§ 9.37 Plan of operations approval.**

- (a) The Regional Director shall not approve a plan of operations:
- (1) Until the operator shows that the operations will be conducted in a manner which utilizes technologically feasible methods least damaging to the federally-owned or controlled lands, waters and resources of the unit while assuring the protection of public health and safety.
  - (2) For operations at a site the surface estate of which is not owned by the federal government, where operations would constitute a nuisance to federal lands or waters in the vicinity of the operations, would significantly injure federally-owned or controlled lands and waters; or
  - (3) For operations at a site the surface estate of which is owned or controlled by the federal government, where operations would substantially interfere with management of the unit to ensure the preservation of its natural and ecological integrity in perpetuity, or would significantly injure the federally-owned or controlled lands or waters; *Provided, however*, that if the application of this

## APPENDIX A – 36 CFR 9B REGULATIONS

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standard would under applicable law, constitute a taking of a property interest rather than an appropriate exercise of regulatory authority, the plan of operations may be approved if the operations would be conducted in accordance with paragraph (a)(1) of this section, unless a decision is made to acquire the mineral interest.

(4) Where the plan of operations does not satisfy each of the requirements of § 9.36 applicable to the operations proposed.

(b) Within sixty (60) days of the receipt of a plan of operations, the Regional Director shall make an environmental analysis of such plan, and:

(1) Notify the operator that the plan of operations has been approved or rejected, and, if rejected, the reasons for the rejection; or

(2) Notify the operator that the plan of operations has been conditionally approved, subject to the operator's acceptance of specific provisions and stipulations; or

(3) Notify the operator of any modification of the plan of operations which is necessary before such plan will be approved or of additional information needed to effectively analyze the effects that the operations will have on the preservation, management and use of the unit, and to make a decision regarding approval or disapproval of the plan of operations and the amount of the performance bond to be posted; or

(4) Notify the operator that the plan of operations is being reviewed, but that more time, not to exceed an additional thirty days, is necessary to complete such review, and setting forth the reasons why additional time is required. *Provided, however,* That days during which the area of operations is inaccessible for such reasons as inclement weather, natural catastrophe acts of God, etc., for inspection shall not be included when computing either this time period, or that in subsection (b) above; or

(5) Notify the operator that the plan of operations has been reviewed, but cannot be considered for approval until forty-five (45) days after a final environmental statement has been prepared and filed with the Environmental Protection Agency; or

(6) Notify the operator that the plan of operations is being reviewed, but that more time to provide opportunities for public participation in the plan of operations review and to provide sufficient time to analyze public comments received is necessary. Within thirty (30) days after closure of the public comment period specified by the Regional Director, he shall comply with § 9.37(b) (1) through (5).

(c) The Regional Director shall act as expeditiously as possible upon a proposed plan of operations consistent with the nature and scope of the operations proposed. Failure to act within the time limits specified in this section shall constitute a rejection of the plan of operations from which the operator shall have a right to appeal under § 9.49.

(d) The Regional Director's analysis shall include:

(1) An examination of all information submitted by the operator;

(2) An evaluation of measures and timing required to comply with reclamation requirements;

(3) An evaluation of necessary conditions and amount of the bond or security deposit (See § 9.48);

(4) An evaluation of the need for any additional requirements in the plan;

(5) A determination regarding the impact of this operation and cumulative impacts of all proposed and existing operations on the management of the unit; and

(6) A determination whether implementation by the operator of an approved plan of operations would be a major Federal action significantly affecting the quality of the human environment or would be sufficiently controversial to warrant preparation of an environmental statement pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969.

(e) Prior to approval of a plan of operations, the Regional Director shall determine whether any properties included in, or eligible for inclusion in the National Register of Historic Places or National Registry of Natural Landmarks may be affected by the proposed operations. This determination will require the acquisition of adequate information, such as that resulting from field surveys, in order to properly determine the presence and significance of cultural resources within the areas to be affected by operations. Whenever National Register properties or properties eligible for inclusion in the National Register would be affected by operations, the Regional Director shall comply with Section 106 of the Historic Preservations Act of 1966 as implemented by 36 CFR Part 800.

(f) Approval of each plan of operations is expressly conditioned upon the Superintendent having such reasonable access to the site as is necessary to properly monitor and insure compliance with the plan of operations.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

### **§ 9.38 Temporary approval.**

(a) The Regional Director may approve on a temporary basis:

(1) Access on, across or through federally-owned or controlled lands or waters for the purpose of collecting basic information necessary to enable timely compliance with these regulations. Such temporary approval shall be for a period not in excess of sixty (60) days.

(2) The continuance of existing operations, if their suspension would result in an unreasonable economic burden or injury to the operator; provided that such operations must be conducted in accordance with all applicable laws, and in a manner prescribed by the Regional Director designed to minimize or prevent significant environmental damage; and provided that within sixty (60) days of the granting of such temporary approval the operator either:

(i) Submits an initial substantially complete plan of operations; or

(ii) If a proposed plan of operations has been submitted, responds to any outstanding requests for additional information.

(b) The Regional Director may approve new operations on a temporary basis only when:

(1) The Regional Director finds that the operations will not cause significant environmental damage or result in significant new or additional surface disturbance to the unit; and either

(2) The operator can demonstrate a compelling reason for the failure to have had timely approval of a proposed plan of operations; or

(3) The operator can demonstrate that failure to grant such approval will result in an unreasonable economic burden or injury to the operator.

[43 FR 57825, Dec. 8, 1978, as amended at 44 FR 37914, June 29, 1979]

**§ 9.39 Reclamation requirements.**

(a) Within the time specified by the reclamation provisions of the plan of operations, which shall be as soon as possible after completion of approved operations and shall not be later than six (6) months thereafter unless a longer period of time is authorized in writing by the Regional Director, each operator shall initiate reclamation as follows:

(1) Where the Federal government does not own the surface estate. the operator shall at a minimum:

(i) Remove or neutralize any contaminating substances; and

(ii) Rehabilitate the area of operations to a condition which would not constitute a nuisance or would not adversely affect, injure, or damage federally-owned lands or waters, including removal of above ground structures and equipment used for operations, except that such structures and equipment may remain where they are to be used for continuing operations which are the subject of another approved plan of operations or of a plan which has been submitted for approval.

(2) On any site where the surface estate is owned or controlled by the Federal government, each operator must take steps to restore natural conditions and processes. These steps shall include but are not limited to:

(i) Removing all above ground structures, equipment and roads used for operations, except that such structures, equipment and roads may remain where they are to be used for continuing operations which are the subject of another approved plan of operations or of a plan which has been submitted for approval, or unless otherwise authorized by the Regional Director consistent with the unit purpose and management objectives;

(ii) Removing all other man-made debris resulting from operations;

(iii) Removing or neutralizing any contaminating substances;

(iv) Plugging and capping all nonproductive wells and filling dump holes, ditches, reserve pits and other excavations;

(v) Grading to reasonably conform the contour of the area of operations to a contour similar to that which existed prior to the initiation of operations, where such grading will not jeopardize reclamation;

(vi) Replacing the natural topsoil necessary for vegetative restoration; and

(vii) Reestablishing native vegetative communities.

(b) Reclamation under paragraph (a)(2) of this section is unacceptable unless it provides for the safe movement of native wildlife, the reestablishment of native vegetative communities, the normal flow of surface and reasonable flow of subsurface waters, and the return of the area to a condition which does not jeopardize visitor safety or public use of the unit.

#### **§ 9.40 Supplementation or revision of plan of operations.**

(a) A proposal to supplement or revise an approved plan of operations may be made by either the operator or the Regional Director to adjust the plan to changed conditions or to address conditions not previously contemplated by notifying the appropriate party in writing of the proposed alteration and the justification therefore.

(b) Any proposed supplementation or revision of a plan of operations initiated under paragraph (a) of this section by either party shall be reviewed and acted on by the Regional Director in accordance with § 9.37. If failure to implement proposed changes would not pose an immediate threat of significant injury to federally-owned or controlled lands or waters, the operator will be notified in writing sixty (60) days prior to the date such changes become effective, during which time the operator may submit comments on proposed changes. If failure to implement proposed changes would pose immediate threat of significant injury to federally-owned or controlled lands or waters, the provisions of § 9.33(c) apply.

#### **§ 9.41 Operating Standards.**

The following standards shall apply to operations within a unit:

(a) Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of natural or man-made impoundments; or within 500 feet of the mean high tide line; or within 500 feet of any structure or facility (excluding roads) used for unit interpretation, public recreation or for administration of the unit unless specifically authorized by an approved plan of operations.

(b) The operator shall protect all survey monuments, witness corners, reference monuments and bearing trees against destruction, obliteration, or damage from operations and shall be responsible for the reestablishment, restoration, or referencing of any monuments, corners and bearing trees which are destroyed, obliterated, or damaged by such operations.

(c) Whenever drilling or producing operations are suspended for 24 hours or more, but less than 30 days, the wells shall be shut in by closing wellhead valves or blowout prevention equipment. When producing operations are suspended for 30 days or more, a suitable plug or other fittings acceptable to the Superintendent shall be used to close the wells.

(d) The operator shall mark each and every operating derrick or well in a conspicuous place with his name or the name of the owner, and the number and location of the well, and shall take all necessary means and precautions to preserve these markings.

(e) Around existing or future installations, e.g., well, storage tanks, all high pressure facilities, fences shall be built for protection of unit visitors and wildlife, and protection of said facilities unless otherwise authorized by the Superintendent. Fences erected for protection of unit visitors and wildlife shall be of a design and material acceptable to the Superintendent, and where appropriate,

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shall have at least one gate which is of sufficient width to allow access by fire trucks. Hazards within visitor use areas will be clearly marked with warning signs acceptable to the Superintendent.

(f) The operator shall carry on all operations and maintain the site at all times in a safe and workmanlike manner, having due regard for the preservation of the environment of the unit. The operator shall take reasonable steps to prevent and shall remove accumulations of oil or other materials deemed to be fire hazards from the vicinity of well locations and lease tanks, and shall remove from the property or store in an orderly manner all scrap or other materials not in use.

(g) Operators will be held fully accountable for their contractor's or subcontractor's compliance with the requirements of the approved plan of operations.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

### **§ 9.42 Well records and reports, plots and maps, samples, tests and surveys.**

Any technical data gathered during the drilling of any well, including daily drilling reports and geological reports, which are submitted to the State pursuant to State regulations, or to any other bureau or agency of the Federal government shall be available for inspection by the Superintendent upon his request.

### **§ 9.43 Precautions necessary in areas where high pressures are likely to exist.**

When drilling in "wildcat" territory, or in any field where high pressures are likely to exist, the operator shall take all necessary precautions for keeping the well under control at all times and shall install and maintain the proper high-pressure fittings and equipment to assure proper well control. Under such conditions the surface string must be cemented through its length, unless another procedure is authorized or prescribed by the Superintendent, and all strings of casing must be securely anchored.

### **§ 9.44 Open flows and control of "wild" wells.**

The operator shall take all technologically feasible precautions to prevent any oil, gas, or water well from blowing open or becoming "wild," and shall take immediate steps and exercise due diligence to bring under control any "wild" well, or burning oil or gas well.

### **§ 9.45 Handling of wastes.**

Oilfield brine, and all other waste and contaminating substances must be kept in the smallest practicable area, must be confined so as to prevent escape as a result of percolation, rain high water or other causes, and such wastes must be stored and disposed of or removed from the area as quickly as practicable in such a manner as to prevent contamination, pollution, damage or injury to the lands, water (surface and subsurface), facilities, cultural resources, wildlife, and vegetation of or visitors of the unit.

### **§ 9.46 Accidents and fires.**

The operator shall take technologically feasible precautions to prevent accidents and fires, shall notify the Superintendent within 24 hours of all accidents involving serious personal injury or death, or fires on the site, and shall submit a full written report thereon within ninety (90) days. This report supersedes the requirement outlined in 36 CFR 2.17, but does not relieve persons from the

responsibility of making any other accident reports which may be required under State or local laws.

#### **§ 9.47 Cultural resource protection.**

(a) Where the surface estate of the site is owned by the United States, the operator shall not, without written authorization of the Superintendent, injure, alter, destroy, or collect any site, structure, object, or other value of historical, archeological, or other cultural scientific importance in violation of the Antiquities Act (16 U.S.C. 431-433 (See 43 CFR Part 3).

(b) Once approved operations have commenced, the operator shall immediately bring to the attention of the Superintendent any cultural or scientific resource encountered that might be altered or destroyed by his operation and shall leave such discovery intact until told to proceed by the Superintendent. The Superintendent will evaluate the discoveries brought to his attention, and will determine within ten (10) working days what action will be taken with respect to such discoveries.

#### **§ 9.48 Performance bond.**

(a) Prior to approval of a plan of operations, the operator shall be required to file a suitable performance bond with satisfactory surety, payable to the Secretary or his designee. The bond shall be conditioned upon faithful compliance with applicable regulations, and the plan of operations as approved, revised or supplemented. This performance bond is in addition to and not in lieu of any bond or security deposit required by other regulatory authorities.

(b) In lieu of a performance bond, an operator may elect to deposit with the Secretary or his designee, cash or negotiable bonds of the U.S. Government. The cash deposit or the market value of such securities shall be at least equal to the required sum of the bond. When bonds are to serve as security, there must be provided to the Secretary a power of attorney.

(c) In the event that an approved plan of operations is revised or supplemented in accordance with § 9.40, the Regional Director may adjust the amount of the bond or security deposit to conform to the modified plan of operations.

(d) The bond or security deposit shall be in an amount:

(1) Equal to the estimated cost of reclaiming the site, either in its entirety or in phases, that has been damaged or destroyed as a result of operations conducted in accordance with an approved, supplemented, plan of operations; plus

(2) An amount set by the Superintendent consistent with the type of operations proposed, to bond against the liability imposed by § 9.51(a); to provide the means for rapid and effective cleanup; and to minimize damages resulting from an oil spill, the escape of gas, wastes, contaminating substances, or fire caused by operations. This amount shall not exceed twenty-five thousand dollars (\$25,000) for geophysical surveys when using more than one field party or five thousand dollars (\$5,000) when operating with only one field party, and shall not exceed fifty thousand dollars (\$50,000) for each wellsite or other operation.

(3) When an operator's total bond or security deposit with the National Park Service amounts to two hundred thousand dollars (\$200,000) for activities conducted within a given unit, no further bond requirements shall be collected for additional activities conducted within that unit, and the



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operator may substitute a blanket bond of two hundred thousand dollars (\$200,000) for all operations conducted within the unit.

(e) The operator's and his surety's responsibility and liability under the bond or security deposit shall continue until such time as the Superintendent determines that successful reclamation of the area of operations has occurred and, where a well has been drilled, the well has been properly plugged and abandoned. If all efforts to secure the operator's compliance with pertinent provisions of the approved plan of operations are unsuccessful, the operator's surety company will be required to perform reclamation in accordance with the approved plan of operations.

(f) Within thirty (30) days after determining that all reclamation requirements of an approved plan of operations are completed, including proper abandonment of the well, the Regional Director shall notify the operator that the period of liability under the bond or security deposit has been terminated.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915 June 29, 1979]

### **§ 9.49 Appeals.**

(a) Any operator aggrieved by a decision of the Regional Director in connection with the regulations in this Subpart may file with the Regional Director a written statement setting forth in detail the respects in which the decision is contrary to, or is in conflict with the facts, the law, or these regulations, or is otherwise in error. No such appeal will be considered unless it is filed with the Regional Director within thirty (30) days after the date of notification to the operator of the action or decision complained of. Upon receipt of such written statement from the aggrieved operator, the Regional Director shall promptly review the action or decision and either reverse his original decision or prepare his own statement, explaining that decision and the reasons therefor, and forward the statement and record on appeal to the Director for review and decision. Copies of the Regional Director's statement shall be furnished to the aggrieved operator, who shall have thirty (30) days within which to file exceptions to the Regional Director's decision. The Department has the discretion to initiate a hearing before the Office of Hearing and Appeals in a particular case (See 43 CFR 4.700).

(b) The official files of the National Park Service on the proposed plan of operations and any testimony and documents submitted by the parties on which the decision of the Regional Director was based shall constitute the record on appeal. The Regional Director shall maintain the record under separate cover and shall certify that it was the record on which his decision was based at the time it was forwarded to the Director of the National Park Service. The National Park Service shall make the record available to the operator upon request.

(c) If the Director considers the record inadequate to support the decision on appeal, he may provide for the production of such additional evidence or information as may be appropriate, or may remand the case to the Regional Director, with appropriate instructions for further action.

(d) On or before the expiration of forty-five (45) days after his receipt of the exceptions to the Regional Director's decision, the Director shall make his decision in writing: provided however, that if more than forty-five (45) days are required for a decision after the exceptions are received, the Director shall notify the parties to the appeal and specify the reason(s) for delay. The decision of the Director shall include: (1) A statement of facts; (2) conclusions; and (3) reasons upon which the conclusions are based. The decision of the Director shall be the final administrative action of the agency on a proposed plan of operations.

(e) A decision of the Regional Director from which an appeal is taken shall not be automatically stayed by the filing of a statement of appeal. A request for a stay may accompany the statement of appeal or may be directed to the Director. The Director shall promptly rule on requests for stays. A decision of the Director on request for a stay shall constitute a final administrative decision.

(f) Where, under this Subpart, the Superintendent has the authority to make the original decision, appeals may be taken in the manner provided by this section, as if the decision had been made by the Regional Director, except that the original statement of appeal shall be filed with the Superintendent, and if he decides not to reverse his original decision, the Regional Director shall have, except as noted below, the final review authority. The only decision of a Regional Director under this paragraph which shall be appealable by the Director is an appeal from a suspension under § 9.51(b). Such an appeal shall follow the procedure of paragraphs (a)-(3) of this section.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

### **§ 9.50 Use of roads by commercial vehicles.**

(a) After January 8, 1978, no commercial vehicle shall use roads administered by the National Park Service without being registered with the Superintendent. Roads must be used in accordance with procedures outlined in an approved plan of operations.

(1) A fee shall be charged for such registration and use based upon a posted fee schedule. The fee schedule posted shall be subject to change upon sixty (60) days of notice.

(2) An adjustment of the fee may be made at the discretion of the Superintendent where a cooperative maintenance agreement is entered into with the operator.

(b) No commercial vehicle which exceeds roadway load limits specified by the Superintendent shall be used on roads administered by the National Park Service unless authorized in writing by the Superintendent, or unless authorized by an approved plan of operations.

(c) Should a commercial vehicle used in operations cause damage to roads, resources or other facilities of the National Park Service, the operator shall be liable for all damages so caused.

### **§ 9.51 Damages and penalties.**

(a) The operator shall be held liable for any damages to federally-owned or controlled lands, waters, or resources resulting from his failure to comply with either his plan of operations, or where operations are continued pursuant to § 9.33, failure to comply with the applicable permit or, where operations are temporarily approved under § 9.38, failure to comply with the terms of that approval.

(b) The operator agrees, as a condition for receiving an approved plan of operations, that he will hold harmless the United States and its employees from any damages or claims for injury or death of persons and damage or loss of property by any person or persons arising out of any acts or omissions by the operator, his agents, employees or subcontractors done in the course of operations.

(c) Undertaking any operations within the boundaries of any unit in violation of this Subpart shall be deemed a trespass against the United States and shall be cause for revocation of approval of the plan of operations.

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(1) When a violation by an operator under an approved plan of operations is discovered, and if it does not pose an immediate threat of significant injury to federally-owned or controlled lands or waters, the operator will be notified in writing by the Superintendent and will be given ten (10) days to correct the violation; if the violation is not corrected within ten (10) days approval of the plan of operations will be suspended until such time as the violation is corrected.

(2) If the violation poses an immediate threat of significant injury to federally-owned or controlled lands or waters, approval of the plan of operations will be immediately suspended until such time as the violation is corrected. The operator will be notified in writing within five (5) days of any suspension and shall have the right to appeal that decision under § 9.48.

(3) Failure to correct any violation or damage to federally owned or controlled lands, waters or resources caused by such violations will result in revocation of plan of operations approval.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

### **§ 9.52 Public inspection of documents.**

(a) When a Superintendent receives a request for permission for access on, across or through federally-owned or controlled lands or waters for the purpose of conducting operations, the Superintendent shall publish a notice of this request in a newspaper of general circulation in the county(s) in which the lands are situated, or in such publications as deemed appropriate by the Superintendent.

(b) Upon receipt of the plan of operations in accordance with § 9.35(c), the Superintendent shall publish a notice in the FEDERAL REGISTER advising the availability of the plan for public review and comment. Written comments received within thirty (30) days will become a part of the official record. As a result of comments received or if otherwise deemed appropriate by the Superintendent, he may provide additional opportunity for public participation to review the plan of operations.

(c) Any document required to be submitted pursuant to the regulations in this Subpart shall be made available for public inspection at the office of the Superintendent during normal business hours, unless otherwise available pursuant to § 9.51(b). This does not include those records only made available for the Superintendent's inspection under § 9.41 of this Subpart or those records determined by the Superintendent to contain proprietary or confidential information. The availability of such records for inspection shall be governed by the rules and regulations found at 43 CFR Part 2.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

## APPENDIX B

### FEDERAL LAWS, REGULATIONS, EXECUTIVE ORDERS, POLICIES, AND GUIDELINES THAT APPLY TO NONFEDERAL OIL AND GAS OPERATIONS

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This appendix summarizes many, but not all, of the legal and policy mandates that currently govern the exercise of nonfederal oil and gas rights in units of the National Park System. At the beginning of this appendix is a table that lists the applicable laws, executive orders and policies that apply to nonfederal oil and gas operations. The first three laws pertain specifically to the National Park Service. They are followed by:

- Other federal laws and regulations, organized in alphabetical order,
- Executive orders, arranged in numerical order, and
- NPS policies, guidelines, and procedures.

This appendix supplements information presented in *Chapter 2, Plan of Operations Application and Permitting Process* of this handbook. The following summaries are intended to acquaint the reader with many of the legal and policy requirements that apply to nonfederal oil and gas operations and are not meant as legal interpretations. They cannot be relied upon to create any rights, substantive or procedural, enforceable by any party in litigation with the United States. Congress may change statutes and agencies may update their regulations and policies. During project planning, operators are responsible for ensuring they have current and complete information on legal and policy requirements for nonfederal oil and gas operations on NPS lands.

## APPENDIX B – LEGAL AND POLICY REQUIREMENTS

**Table B.1. Legal and Policy Mandates Governing Nonfederal Oil and Gas Operations<sup>1</sup>**

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
<b>National Park Service Laws and Regulations</b>	
NPS Organic Act of 1916, as amended, 16 U.S.C. §§ 1 <i>et seq.</i>	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources.
National Park System General Authorities Act, 16 U.S.C. §§ 1a-1 <i>et seq.</i>	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources.
National Park Service Omnibus Management Act of 1998, 16 U.S.C. §§ 5901 <i>et seq.</i>	Any living or non-living resource
NPS Nonfederal Oil and Gas Regulations – 36 CFR Part 9, Subpart B	All, e.g., air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, T&E species, visitor use and experience
16 U.S.C. § 191j (commonly referred to as Park System Resource Protection Act)	Any living or non-living resource that is located within the boundaries of a unit of the National Park System, except for resources owned by a nonfederal entity.
<b>Other Applicable Federal Laws and Regulations</b>	
American Indian Religious Freedom Act, as amended, 42 U.S.C. §§ 1996 – 1996a; 43 CFR Part 7	Cultural and historic resources
Antiquities Act of 1906, 16 U.S.C. §§ 431-433; 43 CFR Part 3	Cultural, historic, archeological, paleontological resources
Archeological Resources Protection Act of 1979, 16 U.S.C. §§ 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7	Archeological resources
Bald and Golden Eagle Protection Act, 16 U.S.C. § 668	Bald and golden eagles
Coastal Zone Management Act, 16 U.S.C. §1451 <i>et seq.</i>	Coastal waters and adjacent shoreline areas, coastal uses, and natural resources
Clean Air Act (CAA), as amended, 42 U.S.C. §§ 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23	Air resources
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601-9675; 40 CFR Parts 279, 300, 302, 355, and 373	Human health, welfare, and the environment
Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. §§ 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450	Plant and animal species or subspecies and their habitat, which have been listed as threatened or endangered by the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS).
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended (commonly referred to as Federal Environmental Pesticide Control Act of 1972), 7 U.S.C. §§ 136 <i>et. seq.</i> ; 40 CFR Parts 152-180, except Part 157	Human health and safety and the environment
Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. §§ 1701 <i>et seq.</i> ; 43 CFR Part 2200 for land exchanges and 43 CFR Parts 1700-9000 for all other BLM activities	Federal lands and resources administered by the Bureau of Land Management

<sup>1</sup> This table summarizes many, but not all, of the statutes, regulations, executive orders and policies that govern the exercise of nonfederal oil and gas rights in park units. All of these laws and regulations are not relevant to every nonfederal oil and gas operation.

## APPENDIX B – LEGAL AND POLICY REQUIREMENTS

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act)- CWA), 33 U.S.C. §§ 1251 <i>et seq.</i> ; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328	Water resources, wetlands, and waters of the U.S.
Historic Sites, Buildings, and Antiquities Act (Historic Sites Act of 1935), 16 U.S.C. §§ 461-467; 18 CFR Part 6; 36 CFR Parts 1, 62, 63 and 65	Historic sites, buildings and objects
Lacey Act, as amended, 16 U.S.C. §§ 3371 <i>et seq.</i> ; 15 CFR Parts 10, 11, 12, 14, 300, and 904	Fish and wildlife, vegetation
Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801	Commercial and recreational fisheries, fish habitat
Marine Mammal Protection Act (MMPA), as amended, 16 U.S.C. §§1361 - 1407	Marine mammals
Migratory Bird Treaty Act (MBTA), as amended, 16 U.S.C. §§ 703-712; 50 CFR Parts 10, 12, 20, and 21	Migratory birds
National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321 <i>et seq.</i> ; 40 CFR Parts 1500-1508	Human environment (e.g. cultural and historic resources, natural resources, biodiversity, human health and safety, socioeconomic environment, visitor use and experience)
National Historic Preservation Act of 1966 (NHPA), as amended, 16 U.S.C. §§ 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810	Cultural and historic properties listed in or determined to be eligible for listing in the National Register of Historic Places
Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. §§ 3001-3013; 43 CFR Part 10	Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony
Noise Control Act of 1972, 42 U.S.C. §§ 4901-4918; 40 CFR Part 211	Human health and welfare
Oil Pollution Act, 33 U.S.C. §§ 2701-2761; 15 CFR Part 990; 33 CFR Parts 135, 137, and 150; 40 CFR Part 112; 49 CFR Part 106	Water resources, natural resources
Pipeline Safety Act of 1992, 49 U.S.C. §§ 60101 <i>et seq.</i> ; 49 CFR Subtitle B, Ch. 1, Parts 190-199	Human health and safety, and the environment
Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 <i>et seq.</i> ; 40 CFR Parts 240-280; 49 CFR Parts 171-179	Natural resources, human health and safety
Rivers and Harbors Act of 1899, as amended, 33 U.S.C. §§ 401 <i>et seq.</i> ; 33 CFR Parts 114, 115, 116, 321, 322, and 333	Shorelines and navigable waterways, tidal waters, wetlands
Safe Drinking Water Act of 1974, 42 U.S.C. §§ 300f <i>et seq.</i> ; 40 CFR Parts 141-148	Human health, water resources
Wilderness Act, 16 U.S.C. §1131 <i>et seq.</i>	Natural and cultural resources, wilderness character and values
<b>Park Enabling Acts</b> <b>(Acts that specifically mention nonfederal oil and gas development on parklands)</b>	
Big Cypress National Preserve 16 U.S.C. § 698f	Natural, cultural, scenic, scientific, and recreational values
Big South Fork National River and Recreation Area 16 U.S.C. § 460ee	Natural, cultural, scenic, scientific, and recreational values
Big Thicket National Preserve 16 U.S.C. § 698	Natural, cultural, scenic, scientific, and recreational values
Fort Union National Monument 16 U.S.C. § 450kk	Natural, cultural, scenic, scientific, and recreational values
Gateway National Recreation area 16 U.S.C. § 460cc	Natural, cultural, scenic, scientific, and recreational values
Gulf Islands National Seashore 16 U.S.C. § 459h	Natural, cultural, scenic, scientific, and recreational values
Jean Lafitte National Historic Park 16 U.S.C. § 230	Natural, cultural, scenic, scientific, and recreational values
Lake Meredith National Recreation Area, 16 U.S.C. § 460eee; and Alibates Flint Quarries National Monument, 79 Stat. 587	Natural, cultural, scenic, scientific, and recreational values
Padre Island National Seashore 16 U.S.C. § 459d	Natural, cultural, scenic, scientific, and recreational values

## APPENDIX B – LEGAL AND POLICY REQUIREMENTS

AUTHORITIES	RESOURCES AND VALUES AFFORDED PROTECTION
<b>Executive Orders</b>	
Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971)	Cultural resources
Executive Order 11988 - Floodplain Management, 42 Fed. Reg. 26951 (1977)	Floodplains, human health, safety, and welfare
Executive Order 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977)	Wetlands
Executive Order 12088 – Federal Compliance with Pollution Control Standards, 43 Fed. Reg. 47707 (1978)	Natural resources, human health and safety
Executive Order 12630 – Governmental Actions and Interference with Constitutionally Protected Property Rights, 53 Fed. Reg. 8859 (1988)	Private property rights, public funds
Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, amended by Exec. Order No. 12948, 60 Fed. Reg. 6379 (1995)	Human health and safety
Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)	Native Americans’ sacred sites
Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999)	Vegetation and wildlife
Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)	Migratory birds
<b>Federal Policies, Guidelines, and Procedures</b>	
NPS Management Policies (2001)	All resources including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, visual resources
Dept. of the Interior, Departmental Manual, DM 516 – NEPA policies	All resources including cultural resources, historic resources, natural resources, human health and safety
Dept. of the Interior, Departmental Manual, DM 517 - Pesticides	Human health and safety and the environment
Dept. of the Interior, Departmental Manual, DM 519 – Protection of the Cultural Environment	Archeological, prehistoric resources, historic resources, Native American human remains, and cultural objects
Dept. of the Interior, Onshore Oil and Gas Order Number 2, Section III, Drilling Abandonment Requirements, 53 Fed. Reg. 46,810-46,811 (1988)	Human health and safety
NPS Director’s Order -12 and Handbook – National Environmental Policy Act (2001)	All resources including natural resources, cultural resources, human health and safety, socioeconomic environment, visitor use
NPS Director’s Order - 28 – Cultural Resource Management	Cultural, historic, and ethnographic resources
NPS 66 – Minerals Management Guideline	Natural resources, human health and safety
NPS 77 – Natural Resources Management Guideline	Natural resources
NPS Director’s Order 77-1 – Wetland Protection	Wetlands
NPS Special Directive 93-4 – Floodplain Management Guideline	Floodplains
Secretary of the Interior’s “Standards and Guidelines for Archeology and Historic Preservation,” 48 Fed. Reg. 44716 (1983), also published as Appendix C of NPS Director’s Order 28 – Cultural Resource Management	Cultural and historic resources
Government-to-Government Relations with Native American Tribal Governments, Presidential Memorandum signed April 29, 1994	Native Americans – Tribal rights and interests

## NATIONAL PARK SERVICE LAWS

### **NATIONAL PARK SERVICE ORGANIC ACT OF 1916 (ORGANIC ACT), as amended, 16 U.S.C. §§ 1 *et seq.***

**Resources afforded protection:** all resources including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, visual resources

**Applicable regulation(s):** 36 CFR Parts 1-10, 12-14, 20, 21, 25, 28, 30, 34, and 51

Through this Act, Congress established the National Park Service and mandated that it “shall promote and regulate the use of federal areas known as national parks, monuments...by such means and measures as conform to the fundamental purpose of said parks, monuments...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

Section 3 of the Organic Act provides the Secretary of Interior with the authority to adopt rules and regulations to govern the use and the management of park units. Through this provision of the Organic Act, the NPS promulgated regulations governing the exercise of nonfederal oil and gas rights at 36 CFR Part 9, Subpart B. The regulations at 36 CFR Part 9 Subpart B control all activities during the exercise of rights to oil and gas not owned by the United States where access is on, across or through federally owned or controlled lands or waters within any NPS unit.

NPS does not intend the regulations to result in the taking of a property interest, but rather intends to impose reasonable regulations on activities that involve and affect federally owned lands. NPS designed the regulations to insure that operators conduct oil and gas activities in a manner consistent with the purposes for which Congress created the NPS unit. Likewise, the regulations prevent or minimize damage to the environment and other resource values and insure that all NPS units remain unimpaired for the enjoyment of future generations.

### **NATIONAL PARK SYSTEM GENERAL AUTHORITIES ACT, 16 U.S.C. §§ 1A-1 *et seq.***

**Resources afforded protection:** all resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, visual resources

**Applicable regulation(s):** 36 CFR Parts 1-199

This act affirmed that while all national park system units remain "distinct in character," they are "united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage." The purpose of this act was "to include all such areas in the system and to clarify the authorities applicable to the system." The act made it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, amendments stated that NPS management of park units should not "derogat[e] . . . the purposes and values for which these various areas have been established."



### **PARK SYSTEM RESOURCE PROTECTION ACT (19 jj), 16 U.S.C. § 19jj**

**Resources afforded protection:** any living or non-living resource that is located within the boundaries of a unit of the National Park System, except for resources owned by a nonfederal entity

**Applicable regulation(s):** none

The Park System Resource Protection Act makes any person who destroys, causes the loss of, or injures any park system resource strictly liable to the United States for response costs and for damages resulting from such destruction, loss, or injury. A park system resource includes any living or non-living resource located within the boundaries of a NPS unit, except for resources owned by a non-federal entity. Because the statute imposes strict liability the only defenses arise when an act of god or war caused the damage, a third party who constituted neither an employee or nor an agent of the owner/operator caused solely the damage, or an activity authorized by federal or state law caused the damage.

The Park System Resources Protection Act authorizes the Secretary of the Interior to request the Department of Justice to file a civil action for the costs of replacing, restoring or acquiring the equivalent of a park system resource; the value of any use loss pending its restoration; replacement, or acquisition, the cost of damage assessments; and the cost of response including actions to prevent, to minimize, or to abate injury.

The Park System Resource Protection Act applies to nonfederal oil and gas activities on National Park System units. Operators need to ensure that they operate within the specifications of their approved 9B plan, comply with all other relevant legal requirements, and take precautions to avoid actions that may damage park system resources.

### **NATIONAL PARK SERVICE OMNIBUS MANAGEMENT ACT OF 1998, 16 U.S.C. §§ 5901 *et seq.***

**Resources afforded protection:** any living or non-living resource

**Applicable regulation(s):** none

This statute requires the Secretary of Interior to continually improve the NPS's ability to provide management, protection and interpretation of national park system resources. The statute directs the NPS to manage the units by employing high quality science and information; to inventory the system's resources to create baseline information so that NPS can monitor and analyze future data to determine trends in the resources' conditions; and to use the results of the scientific studies for park management. In the oil and gas context, this requires operators to support their plans of operations by scientific data. Further, it requires the operators to monitor their operations area to insure that their operations do not adversely impact the park's resources.

## OTHER APPLICABLE FEDERAL LAWS AND REGULATIONS

### **AMERICAN INDIAN RELIGIOUS FREEDOM ACT, as amended, 42 U.S.C. §§ 1996–1996a**

**Resources afforded protection:** cultural and historic resources

**Applicable regulation(s):** 43 CFR Part 7

This Act makes it a federal government policy to protect and to preserve Native Americans', Eskimos', Aleuts', and Native Hawaiians' inherent right to believe, to express, and to exercise their traditional religions. It allows them to access, to use, and to possess sacred objects and gives them the freedom to worship through ceremonials and traditional rites. It further directs various federal departments, agencies, and other administrative bodies to evaluate their policies and procedures in consultation with native traditional religious leaders to determine changes necessary to protect and preserve Native American religious cultural rights and practices. NPS managers consult NPS Special Directive 78-1, Policy Guidelines for Native American Cultural Resource Management when making decisions that may affect Native American religious practices.

If NPS anticipates a conflict between proposed oil and gas operations and tribal religious rights, it will consult with the tribe as part of the 9B plan approval process. To ensure compliance with this Act, the NPS will consult with tribes during the plan of operations approval process.

### **ANTIQUITIES ACT OF 1906, 16 U.S.C. §§ 431- 433**

**Resources afforded protection:** cultural, historic, archeological and paleontological resources

**Applicable regulation(s):** 43 CFR Part 3

As the Archeological Resources Protection Act's forerunner, the Antiquities Act constituted the first general act providing protection for archeological resources. It protects all historic and prehistoric ruins or monuments on federal lands and prohibits their excavation, destruction, injury or appropriation without the departmental secretary's permission. It also authorizes the United States' president to proclaim as national monuments public lands having historic landmarks, historic and prehistoric structures, and other objects of historic or of scientific interest. The Antiquities Act also authorizes the president to reserve federal lands, to accept private lands, and to accept relinquishment of unperfected claims for that purpose.

The Act authorizes the departmental secretary to issue permits to qualified institutions to examine ruins, excavate archeological sites, and gather objects of antiquity. Regulations at 43 CFR Part 3 establish procedures for permitting the excavation or collection of prehistoric and historic objects on federal lands. ARPA permits replace Antiquities Act permits.

Operators who excavate, injure, destroy or appropriate any "object of antiquity" while engaging in mineral activities on federal lands without or contrary to an approved plan of operations violate the Antiquities Act and trigger its penalties.

**ARCHEOLOGICAL RESOURCES PROTECTION ACT OF 1979 (ARPA), 16 U.S.C. §§ 470AA - 470MM**

**Resources afforded protection:** archeological resources

**Applicable regulation(s):** 43 CFR Part 7; 36 CFR Part 296; 32 CFR Part 229; and 18 CFR 1312

Congress enacted the Archeological Resources Protection Act (ARPA) to preserve and protect archeological resources and sites on federal and Indian lands. The law makes it illegal to excavate or to remove from federal or Indian lands any archeological resources without a permit from the land manager. It also prohibits the removal, sale, receipt, and interstate transportation of archeological resources obtained illegally (i.e., without permits) from federal or Indian lands.

Agencies may issue permits only to educational or to scientific institutions if the resulting activities will increase knowledge about archeological resources. The law defines archeological resources as material remains of past human life or activities that are of archeological interest and are at least 100 years old. All materials collected on federal lands as a result of permitted activities remain the property of the United States. Those excavated from Indian lands remain the property of the Indian or Indian tribe having rights of ownership over such resources. Congress amended the law to require development of plans for surveying public lands for archeological resources and of systems for reporting incidents of suspected violations.

ARPA also fosters cooperation between governmental authorities, professionals, and the public. The ARPA permit process ensures that individuals and organizations wishing to work with federal resources have the necessary professional qualifications and that these people follow federal standards and guidelines for research and curation. The process allows the State Historic Preservation Officer (SHPO) to review and comment on ARPA permit applications. Federal agencies do not issue ARPA permits to themselves or to their contractors. The Scope of Work and contractor's proposal, which constitute the contract, insures that contractors comply with federal standards and guidelines. The ARPA permit replaces the permit required by the Antiquities Act of 1906.

ARPA imposes severe criminal and civil penalties on anyone who excavates, removes, damages, or otherwise alters or defaces archeological resources without a permit. However, ARPA applies only to lands owned by the United States and lands held in trust by the United States for Indian tribes and individual Indians. ARPA does not apply on the nonfederal surface estate.

A contractor hired by an operator to conduct a cultural resource survey that involves any collection of archeological resources, whether or not excavation or subsurface testing is involved, must obtain an ARPA permit. Operations under an approved 9B plan do not need an ARPA permit for incidental disturbance of archeological resources because these operations occur exclusively for purposes other than excavation or removal of archeological resources. General earth-moving excavations performed under an approved plan of operations do not constitute "excavation or removal" of archeological resources. However, agencies require an ARPA permit before an operator under 36 CFR Part 9B salvages previously unknown archeological resources discovered during operations.

ARPA regulations appear at 43 CFR Part 7, Subparts A and B. Subpart A - "Protection of Archeological Resources, Uniform Regulations," promulgated pursuant to ARPA's section 10(a) jointly by the Secretaries of Interior, Agriculture, and Defense, and the Chairman of the Board of

the Tennessee Valley Authority, establishes the uniform definitions, standards, and procedures that all federal land managers must follow when providing protection for archeological resources located on public and on Indian lands. Subpart B - "Department of the Interior Supplemental Regulations," provides definitions, standards, and procedures for federal land managers to protect archeological resources and provides further guidance for Interior bureaus concerning definitions, permitting procedures, and civil penalty hearings. In addition, NPS regulations at 36 CFR §9.47 discuss 9B plans and archeological resources.

Operators who remove, excavate, damage, alter, or deface archeological resources without or contrary to an approved plan of operations, while on federal property violate ARPA and trigger both its civil and criminal penalties.

### **BALD AND GOLDEN EAGLE PROTECTION ACT, 16 U.S.C. § 668**

**Resources afforded protection:** bald and golden eagles

**Applicable regulation(s):** none

The Eagle Act is one of the oldest federal wildlife conservation laws. It was enacted to provide federal protection for bald and golden eagles against the threat of take and commercial pressure. As a result, the Eagle Act contains a broad-based prohibition against the possession, taking, sale, import or export of eagles. The Secretary of the Interior is charged with the implementation of this statute. Permitting authority under the Bald and Golden Eagle Protection Act is quite limited.

### **CLEAN AIR ACT (CAA), as amended, 42 U.S.C. §§ 7401-7671q**

**Resources afforded protection:** air resources

**Applicable regulation(s):** 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; and 48 CFR Part 23

The Clean Air Act (CAA) seeks to "protect and enhance" the quality of the nation's air resources; to promote the public health and welfare and the productive capacity of its population; to initiate and to accelerate a national research and development program to achieve the prevention and control of air pollution; to provide technical and financial assistance to state and local governments for aid in their development and execution of air pollution programs; and to encourage and to assist the development and the operation of regional air pollution control programs. Violations of Clean Air Act standards are enforceable through criminal or civil proceedings in appropriate cases, and civil injunctive remedies may be sought to correct violations.

The Act vests authority in the U.S. Environmental Protection Agency (EPA) to establish national primary standards to protect human health and more stringent national secondary standards to protect human welfare (National Ambient Air Quality Standards or NAAQS). The statute makes states and local governments responsible for the prevention or control of air pollution. NAAQS exist for sulfur dioxide, particulate matter, ozone, nitrogen dioxide, carbon monoxide, and lead.

Divided into air quality control regions, states must submit Implementation Plans for EPA approval. These plans provide strategies for the implementation, maintenance, and enforcement of national primary and secondary ambient air quality standards for each air quality control region.

## APPENDIX B – LEGAL AND POLICY REQUIREMENTS

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Other provisions of the Act include: new source review permit programs, standards of performance for new stationary sources (NSPS), motor vehicle emission and fuel standards, national emission standards for hazardous air pollutants (NESHAPS), studies of particulate emissions from motor vehicles, studies of the cumulative effect of all substances and activities that may affect the stratosphere (especially ozone in the stratosphere), programs to Prevent Significant air quality Deterioration (PSD) in areas attaining the NAAQS, and programs to protect visibility in large national parks and wilderness areas.

All sources of air pollution, including publicly or privately owned facilities, must meet all federal, state, and local requirements under the CAA. In most cases, states and local authorities regulate air pollution control. For the National Park Service, the Prevention of Significant Deterioration of Air Quality (PSD) (42 U.S.C. §§ 7470-7475) and the Visibility Protection (42 U.S.C. § 7479) constitute the most important CAA sections.

The PSD provisions establish a classification system for the United States' clean air areas, which include those designated as Class I, Class II or Class III. National Park System units are designated as Class I or Class II areas. This classification indicates the additional increment of air quality degradation from particulate matter, sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), allowed in that area. Class I areas may only degrade by a very small increment of new pollution while Class III areas can degrade substantially. There are currently no Class III areas designated in the country.

As part of the Prevention of Significant Deterioration (PSD) program, Congress designated many National Parks and wilderness areas (including U.S. Fish and Wildlife Service and U.S. Forest Service wilderness areas) mandatory Class I areas. Because states may not redesignate these areas, Congress provided those areas with maximum protection from future air quality degradation. EPA designated all other parts of the country where air quality did not violate the national ambient air quality standards Class II areas where moderate pollution increases may occur. States or Indian tribes may reclassify Class II areas as Class III, thus, allowing significant pollution increases. However, no entity can designate certain Class II areas, such as national monuments and national recreation areas, as Class III but only Class II, or, at the option of the state, Class I.

Generally, the PSD rules apply only to major new or expanding facilities planning to locate or expand operations in clean air areas. An operator of a facility seeking a new source permit for location or for expansion in a clean air area must meet several requirements including National Ambient Air Quality Standards; PSD Classes I, II and III air pollution increments; and, a special "adverse impact determination" for Class I areas.

To protect the scenic value of visibility in National Parks and wilderness areas, Congress established a national visibility goal in section 169A of the CAA. The goals in the Act are, "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I federal areas which impairment results from manmade air pollution". Under current EPA regulations, the thirty-six states with mandatory Class I areas must assure reasonable progress toward the national visibility goal with respect to impairment reasonably attributed to major stationary sources of air pollution. EPA and states review new major stationary sources and major modifications under permitting programs (i.e., PSD and nonattainment area new source review) to assure visibility protection of Class I areas from potential future emissions.

These permitting programs also require that new major sources analyze visibility and other air quality impacts in the general area affected by the new source's emissions regardless of the classification of the area as Class I or Class II. If oil and gas development and operations result in major emissions of air pollutants as defined in PSD and nonattainment area permitting provisions, then such major emitting facilities would need to comply with these requirements as well as any other applicable, federal, state, and local air quality rules and regulations. EPA issued new regulations in July 1999 to address visibility impairment caused by regional haze, but implementation of this program will not occur for several more years.

One particular issue that must be addressed concerns conformity with ozone nonattainment area State Implementation Plans (SIP). The Clean Air Act Amendments of 1990 required EPA to promulgate rules to ensure that federal actions conform to appropriate nonattainment area SIPs. These rules prohibit federal agencies from taking any action that causes or contributes to any new violation of the NAAQS, increases the frequency or severity of an existing violation, or delays the timely attainment of a standard. The NPS will need to make a conformity determination for any oil and gas permitting decisions made under this management plan as it pertains to existing nonattainment SIPs applicable in the area of the parks.

### **CLEAN WATER ACT (also known as FEDERAL WATER POLLUTION CONTROL ACT OF 1972), 33 U.S.C. §§1251 *et seq***

**Resources afforded protection:** water resources, wetlands, and waters of the U.S.

**Applicable regulation(s):** 33 CFR 320-330; and 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328

Originally titled the Federal Water Pollution Control Act of 1972 (FWPCA) and significantly amended in 1977 and 1987, the Clean Water Act established a federal policy to restore and to maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control and abate water pollution.

To achieve this objective, the CWA establishes the ultimate goal of eliminating the discharge of pollutants into navigable waters of the United States and the interim goal of maintaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water. The CWA prohibits the discharge of toxic pollutants in toxic amounts; provides federal assistance to construct publicly owned waste treatment works; develops and implements area-wide waste treatment management processes to assure adequate control of source pollutants in each state; makes a major research and demonstration effort to develop technology necessary to eliminate the discharge of pollutants into navigable waters, waters of the contiguous zone, and the oceans; and develops and implements programs for the control of nonpoint sources of pollution to control both point and nonpoint sources of pollution.

Violations of the Clean Water Act are subject to civil injunctive action brought by the United States, or, under certain conditions, by citizens.

As with most environmental programs, the CWA requires that states set and enforce water quality standards to meet minimum federal (EPA) requirements, including: effluent limitations for point sources of pollution; permits for discharges of pollutants into waters of the United States; and permits for discharges of dredged or fill material into waters of the U.S., including wetlands.

## **APPENDIX B – LEGAL AND POLICY REQUIREMENTS**

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The following sections of the CWA are relevant to oil and gas operators in National Park System units: Section 311 - Spill reporting and spill control; Section 401 - State certification of project compliance; Section 402 - National Pollutant Discharge Elimination System (NPDES); Section 404 - Corps of Engineers dredge and fill permits.

### **Section 311 (33 U.S.C. § 1321)**

Under section 311 no person can discharge oil or hazardous substances in harmful quantities into or upon navigable waters of the U.S., into or upon adjoining shorelines, or into or upon waters of the contiguous zone. Likewise, a person cannot discharge in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974. For oil, a harmful quantity (i.e., that requires reporting) equals that amount which causes a violation of the applicable water quality standard or that amount which causes a film, sheen, or discoloration of the water surface. People who discharge a reportable quantity” report as soon as possible to the U.S. Coast Guard, EPA, and/or appropriate state agency depending on the geographic location of the spill and the type of substance spilled.

Hazardous substances are handled differently. Title 40 CFR Part 116 lists about 300 hazardous substances. Title 40 CFR Part 117 defines the reportable quantities for each substance. The reporting requirements of 40 CFR Part 117 do not apply to permitted discharges. (See Section 402 permits below.) Failure to report a discharge can result in criminal penalties including fines and imprisonment. Section 311 also provides for federal cleanup of the spill and places the costs of cleanup on the entity that caused the spill. The section also protects the person in charge who reports the spill from criminal prosecution, but offers no immunity from civil penalties that may apply.

Under section 311, EPA issued regulations (40 CFR Part 112) to prevent the discharge of oil and hazardous substances into the navigable waters of the United States. These regulations require that any of the facilities described below prepare a Spill Prevention Control and Countermeasure Plan (SPCCP).

The SPCCP requirement applies to non-transportation related onshore and offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing or consuming oil or oil products. It only applies if the facilities due to their location, could potentially discharge oil in harmful quantities into or on the navigable waters of the United States or the adjoining shoreline. (Note: facilities with an underground storage capacity less than 42,000 gallons, or facilities with an above-ground storage capacity less than 1,320 gallons, are exempt from this requirement.)

Under its regulations at 36 CFR Part 9B, the NPS requires a nonfederal oil and gas operator to submit a plan to deal with oil spills and other environmental hazards. A copy of the SPCCP, if one is required under 40 CFR Part 112, will often meet the requirement for oil spill plans under 36 CFR Part 9B.

### **Section 401 Water Quality Certification (33 U.S.C. § 1341)**

Section 401 requires certification from the state or interstate water control agencies that a proposed water resources project complies with established effluent limitations and water quality standards. Applicants for federal permits or licenses must obtain this certification.

**Section 402 Permits (33 U.S.C. § 1342(l)(2))**

The National Pollutant Discharge Elimination System (NPDES) controls the discharges of pollutants from their point source into waters of the United States by using a permitting system. A "point source" could be a tank battery, for example. Everyone discharging waste flows into U.S. waters needs an NPDES permit. EPA or states with EPA-approved programs issue NPDES permits.

The NPDES permit sets specific discharge limits. The limits rely on most recent pollution control technology, water quality standards, and government imposed schedules for installation of new pollution control equipment. The permit gives directions to the operator for monitoring and reporting discharges. The regulations provide for individual permits, group permits for like facilities, and general permits.

The Water Quality Act of 1987 amended the CWA to address stormwater runoff from industrial facilities. EPA requires a NPDES stormwater runoff permit for runoff that may touch machinery or contaminated material onsite and cause contamination of adjacent property. Industrial facilities include oil and gas exploration, production and development operations. The EPA published its rule on NPDES permit application regulations for storm water discharges at 55 Fed. Reg. 47990 (November 16, 1990).

The CWA exempts mining and oil and gas operations from the Section 402 stormwater permit requirements if,

"...discharges of stormwater runoff from mining operations, oil and gas exploration, production, processing, or treatment operations or transmission facilities, [are] composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and...are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, by-product, or waste products located on the site of such operations." (33 U.S.C. § 1342(l)(2))

"Contaminated storm water runoff" includes runoff containing a hazardous substance in excess of reporting quantities established at 40 CFR § 117.3 or 40 CFR § 302.4, containing oil in excess of the reporting quantity established at 40 CFR § 110.3 (e.g., causes a visible sheen), or contributing to a violation of a water quality standard.

**Section 404 Permits (33 U.S.C. § 1344)**

Under section 404, anyone who disposes dredge or fill material into navigable waters needs a permit from the U.S. Army Corps of Engineers (COE). "Navigable waters" mean "...those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." (33 CFR 329.4)

A determination of navigability, once made, applies laterally over the entire surface of the waterbody and remains even if later actions or events impede or destroy its navigable capacity.

Section 404 regulates discharges into virtually all surface waters where the use, degradation, or destruction of these waters could affect interstate commerce. It also applies to all tributaries and adjacent wetlands of such waters. The COE defines wetlands as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under



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normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions..." (33 CFR 328.3(b)).

The Corps of Engineers may issue individual or general permits on a state, regional, or nationwide basis. It issues general permits for certain kinds of similar activities in wetlands that will cause only minimal adverse effects on the environment. General permits do not cover many operators of nonfederal oil and gas properties in National Parks. They must obtain an individual "404" permit to conduct any operations that involve dredging or discharge of fill material into wetlands.

Before the issuance of either a NPDES or section 404 permit, the applicant must obtain a section 401 certification. This declaration states that any discharge complies with all applicable effluent limitations and water quality standards.

The NPS cannot waive CWA requirements for oil and gas operators. An operator has full responsibility for obtaining section 402 (NPDES) or/and section 404 (dredge and fill) permits and for reporting spills of oil, or other contaminating and hazardous substances.

### **COASTAL ZONE MANAGEMENT ACT OF 1972 (CZMA), as amended, 16 U.S.C. §1451 *et seq.***

**Resources afforded protection:** coastal waters and adjacent shoreline areas, coastal uses and natural resources

**Applicable regulation(s):** 15 CFR Parts 923, 930, 933

Congress enacted the Coastal Zone Management Act (CZMA) in 1972 to preserve, protect, develop, and, where possible, restore or enhance" the resources of the Nation's coastal zone. The purpose of the Act is to improve the nation's management of coastal resources, which have been irretrievably damaged or lost due to poorly planned development. Specific concerns were the loss of living marine resources and wildlife habitat, decreasing open space for public use, and shoreline erosion. Congress also recognized the need to resolve conflicts between various uses that were competing for coastal lands and waters (USDOC, NOAA, 1988a). The "coastal zone" means the coastal waters and the adjacent shorelands of the United States. It also includes coastal zones of the Great Lakes.

The CZMA establishes a state-federal partnership in which the states take the lead in managing their coastal resources by developing state Coastal Zone Management (CZM) programs and plans, while the federal government provides financial and technical assistance. In section 109, the CZMA encourages each state, through a Coastal Zone Enhancement Grants Program, to improve continually its CZM program in one or more of eight identified national priority areas:

- coastal wetlands management and protection,
- natural hazards management (including potential sea and Great Lakes level rise),
- public access improvements,
- reduction in marine debris,
- assessment of cumulative and secondary impacts of coastal growth and development,
- special area management planning,
- ocean resource planning, and
- siting of coastal energy and government facilities.

Approved state CZM programs must provide a mechanism for public participation in permitting processes, consistency determinations and other similar decisions. They must also provide a mechanism to ensure that all state agencies will adhere to the program, and contain enforceable policies and mechanisms to implement the applicable requirements of the State's Coastal Nonpoint Pollution Control Program.

The CZMA requires federal agencies to act in a manner consistent with federally approved state management programs. Federal consistency under the CZMA means that federal actions that affect any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of a coastal state's or territory's federally approved coastal management program. In states that do not have a coastal zone management program approved by the Secretary of Commerce, the requirement for a consistency review and state concurrence does not apply. Under NPS Management Policies, the NPS will comply with provisions of state coastal zone management plans prepared under the Coastal Zone Management Act (Management Policies, 4.8.1.1).

The National Oceanic and Atmospheric Administration's (NOAA) coastal zone management program regulations (15 CFR 923) require that the boundary of a state's coastal zone must exclude federal lands. However, the Coastal Zone Reauthorization Amendments of 1990 declared that all federal agency activities, whether in or outside of the coastal zone, are subject to the consistency requirements of Section 307(c) of the CZMA if the activities affect natural resources, land uses, or water uses in the coastal zone.

Through a consistency review process, NPS actions (e.g., approval of a proposed plan of operations) that may have a spillover effect on CNRAs will be reviewed to ensure they are consistent with the state's Coastal Zone Management Program policies and goals. Under this process, the Coastal Coordination Council must refer a consistency certification within 45 days of receipt by the Council Secretary of an administratively complete consistency certification, or the action is conclusively presumed to be consistent.

Applicants for federal agency permits to conduct nonfederal oil and gas operations that affect any land or water use or natural resource of the coastal zone of a state with an approved program must include in their application a certification that their proposed action complies with the enforceable policies of the approved state program and that they will carry out the action consistent with the program. The state coastal agency may concur with or object to the applicant's certification. If it concurs with the applicant, or if no notice is given within 6 months after the state agency receives the applicant's certification, then the federal agency may proceed with processing the application. If, however, the state agency objects to the certification, then no action may be taken by the federal agency on the application unless and until an appeal is taken to the Secretary of Commerce, who may allow the federal agency to proceed if the Secretary finds that the proposed activity is consistent with the objectives of the CZMA or is otherwise necessary in the interest of national security.

The CZMA is not enforceable through the imposition of criminal or civil sanctions. While it is purely an administrative statute, however, failure to follow its provisions can lead to Administrative Procedure Act challenges to federal agency actions that affect the coastal zone. In appropriate cases, such challenges could result in the imposition of injunctions that restrict or alter a federal agency action.

### **COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601- 9675**

**Resources afforded protection:** human health and welfare and the environment

**Applicable regulation(s):** 40 CFR Parts 279, 300, 302, 355, and 373

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as "Superfund," provides for cleanup of sites contaminated by hazardous substances in the United States. CERCLA defines "hazardous substance" as any substance: listed under the Resources Conservation and Recovery Act (42 U.S.C. § 6921) as hazardous waste or having the characteristics identified under that section; listed under the Clean Water Act (33 U.S.C. § 1321(b)(2)(a)) as a hazardous substance or (33 U.S.C. § 1317(a)) as a toxic pollutant; listed under the Clean Air Act (42 U.S.C. § 7412) as a hazardous air pollutant; listed under the Toxic Substances Control Act (15 U.S.C. § 2606) as an imminently hazardous chemical substance or mixture; or listed under CERCLA (42 U.S.C. § 9602) as a hazardous substance.

CERCLA explicitly excludes from the definition of hazardous substance petroleum, including crude oil or any fraction of petroleum that is not otherwise specifically listed or designated as a hazardous substance under statutory provisions listed above. It also excludes natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable as fuel from the definition of hazardous substances. (42 U.S.C. § 9601(14)).

Owners or operators of a facility that stored, treated, or disposed of hazardous substances must notify EPA of the location and of the type of waste at the site. EPA puts the most seriously contaminated sites on a National Priorities List (NPL) and updates it annually. Sites on the NPL are eligible for long-term clean up actions funded by the EPA administered Superfund program.

CERCLA also includes reporting requirements for spills or other releases of hazardous substances. CERCLA requires persons in charge of a vessel or facility to report to the National Response Center releases (except federally permitted releases) of hazardous substances into the environment if releases constitute less than the reportable quantity established by EPA (40 CFR § 302.4), then the people do not have to report. But, failure to report a reportable quantity warrants a fine of up to \$10,000 and imprisonment not to exceed one year (42 U.S.C. § 9603). "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, dumping or disposing into the environment. "Release" includes the abandonment of barrels or containers that contain hazardous substances.

CERCLA directs the president to revise and to publish a National Contingency Plan (NCP) for the cleanup of petroleum and of hazardous waste spills. EPA developed the original NCP under section 311 of the Clean Water Act. The NCP details how the EPA will respond to spills of oil or hazardous substances regulated under CERCLA and/or the Clean Water Act. EPA publishes the plan, called the National Oil and Hazardous Substances Pollution Contingency Plan, at 40 CFR Part 300.

CERCLA authorizes the EPA to clean up sites using the Superfund, to issue administrative orders requiring potentially responsible parties (PRPs) to clean up sites, and to obtain court orders requiring PRPs to clean up sites. If EPA uses the Superfund, then CERCLA authorizes EPA to sue PRPs to recover costs of the cleanup. PRPs who have incurred costs cleaning up may sue other PRP's to recover part of the cost of the cleanup.

Under CERCLA, the EPA tries to find all PRPs, including the present owner or operator of a vessel or facility that released or threatened a release of hazardous substances, past owners or

operators of a vessel or facility at the time of disposal of the hazardous substance; persons who arranged for disposal of the hazardous substance at the facility; and persons who transported a hazardous substance to the facility.

However, if the PRP can establish that the release or threatened release and the resulting damages occurred solely by an act of God, an act of war, or an unforeseen act or omission of a third party who neither constituted an agent nor an employee of the PRP, then no liability attaches. CERCLA provides an innocent landowner defense under limited circumstances.

Persons liable under CERCLA remain responsible for all response costs incurred by the United States, a state or an Indian tribe. They may also incur liability for damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing the injury, and for the destruction or loss of natural resources. Furthermore they may be responsible for costs of certain health assessments or studies.

CERCLA imposes strict liability meaning the government does not have to prove that the person intended to release, acted negligently in releasing, or caused the release of a hazardous substance into the environment. Moreover, in most cases, any of the liable parties may be held responsible for the entire cost of the cleanup. To recover part of the cleanup costs, the party then sues other liable parties for contribution.

Operators and their contractors should thoroughly investigate waste disposal sites before sending hazardous substances. They should check to make sure disposal sites have the relevant state and federal permits and that the disposal company has provided enough money to properly close the site. If a release occurs from the disposal site, then the persons who disposed of hazardous substances could incur large cleanup bills.

Operators should avoid releases of hazardous substances. Release of an operator's performance bond required under 36 CFR §§9.48 does not affect possible subsequent liability under CERCLA for releases of a hazardous substance into the environment.

### **ENDANGERED SPECIES ACT OF 1973 (ESA), as amended, 16 U.S.C. §§ 1531-1544**

**Resources afforded protection:** plant and animal species or subspecies and their habitat, which have been listed as threatened or endangered by the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS). Distinct population segments of species of vertebrate fish or wildlife, which interbreed when mature, may also be listed as threatened or endangered, and are afforded protection.

**Applicable regulation(s):** 50 CFR Parts 10, 17, 23, 81, 217, 222, 225 402, and 450; and 36 CFR Part 13

The Endangered Species Act of 1973 (ESA) protects plants and animals in danger of becoming extinct throughout all or a significant part of their range. The U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) administer the Act. The ESA makes it illegal to "take" an endangered species of fish or wildlife without a permit from the FWS or NMFS. "Taking" includes direct killing, hurting, trapping, or harassing. It also includes disrupting a habitat critical to the species' survival. Protective regulations issued at the time of listing for a threatened species of fish or wildlife may also prohibit or limit taking of the species without a permit.

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Federal agencies must formally consult with the FWS/NMFS when they believe that their own actions (including permitting) may affect a listed or a proposed threatened or endangered (T & E) species. The ESA prohibits agency actions occurring within the United States that jeopardize the continued existence of a T & E species and/or destroy or adversely affect designated critical habitat necessary for the species' survival.

When an operator submits a proposed plan of operations, the NPS and operators must comply with the requirements of the Endangered Species Act and the regulations FWS and NMFS have promulgated to implement it (50 CFR Part 402). The NPS asks the FWS/NMFS for a list of proposed or listed species and proposed or designated critical habitat in the area where the operator proposes to operate. If the FWS or NMFS advises the NPS that listed or proposed T&E species may be present, then the NPS must prepare a biological assessment (BA). The BA evaluates the potential effects of the action on listed and proposed species and designated and proposed critical habitat. It determines whether the action will adversely affect any such species or habitat.

The Biological Assessment must be included with the NEPA documentation (commonly an environmental assessment for nonfederal oil and gas operations) required under the National Environmental Policy Act. The BA should include a list of listed and proposed threatened or endangered species occurring in the project area; impacts the project could have on these species and their habitat; project measures intended to mitigate, or reduce adverse impacts to these species and their habitat; and a description of the formal and informal consultation with the FWS or NMFS.

If the BA indicates that the action will not adversely affect any remaining listed species or designated critical habitat and the FWS/NMFS concurs, then formal consultation is not required. Likewise, if the BA indicates that the action is not likely to jeopardize the continued existence of proposed species or result in the destruction or adverse modification of proposed critical habitat, and FWS/NMFS concurs, then a conference is not required.

However, if the BA indicates that the action may adversely affect a listed species or designated critical habitat, then the NPS must formally consult with the FWS or NMFS. At the end of consultation the FWS or NMFS provides the NPS and the applicant with its "biological opinion." If the opinion finds the proposed action will jeopardize the continued existence of the species or result in the destruction or adverse modification of designated critical habitat, then the FWS or NMFS must suggest reasonable and prudent alternatives to the proposed action that the NPS and the operator can use. If the FWS or NMFS cannot develop any reasonable and prudent alternatives, then it will indicate that to the best of its knowledge that no reasonable and prudent alternatives exist. The FWS or NMFS may also formulate conservation recommendations, which will help the NPS reduce or eliminate the impacts the proposed action may have on listed species or designated critical habitat. The NPS will comply with prescribed alternatives when approving the plan of operations or implementing any other related action.

As stated in NPS-66, "Minerals Management Guideline," the NPS cannot approve a plan of operations if the FWS or NMFS has found that, no matter how modified, the action will result in "jeopardy" to a listed species or "destruction or adverse modification to habitat" critical to a listed species. Jeopardizing a listed species or habitat critical to a listed species' survival constitutes a "significant injury to federal lands" in the meaning of 36 CFR Part 9B. The 36 CFR Part 9B regulations do not allow the NPS to approve proposed plans that will result in a "significant injury to federal lands."

**FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA), as amended (also known as Federal Environmental Pesticide Control Act of 1972), 7 U.S.C. §§ 136 et. seq.**

**Resources afforded protection:** human health and safety, and the environment

**Applicable regulation(s):** 40 CFR Parts 152-180, except Part 157

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, regulates pesticides in the United States. FIFRA prohibits the distribution or sale of unregistered pesticides and establishes procedures for registering pesticides with the EPA. EPA has the authority to suspend or to cancel registrations for pesticides, which cause unreasonable adverse effects on the environment. To gain registration approval, a pesticide must meet EPA criteria regarding efficacy, labeling, and environmental safety. The statute makes illegal using a pesticide in a manner inconsistent with its labeling. EPA determines whether it should classify pesticides for general or restricted use. People may only use pesticides classified for restricted use under the direct supervision of a certified applicator or subject to other restrictions imposed by regulation.

FIFRA also requires EPA to establish regulations for storage and disposal of pesticide containers, excess pesticides and pesticides with canceled registration. The Act also outlines penalties, indemnities, and administrative procedures. In addition, EPA may exempt from any provision of Act any federal or state agency, if it determines emergency conditions, requiring such exemption, exist.

The appropriate NPS pesticide specialist must review and approve use of pesticides, including herbicides and rodenticides, before anyone can use them in units of the National Park System, including those where nonfederal oil and gas operations under a 9B plan occur. An NPS Integrated Pest Management Specialist must review and approve the proposed use of herbicides for clearing areas for oil and gas operations. The parks follow Department of the Interior Departmental Manual - 517; Director's Order – 77, Natural Resources; and NPS Procedures for Pesticide Use Requests when considering proposals for pesticide use.

**FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA), 43 U.S.C. §§ 1701 et seq.**

**Resources afforded protection:** Federal lands and resources administered by the Bureau of Land Management

**Applicable regulation(s):** 43 CFR Part 2200 for land exchanges and 43 CFR Parts 1700-9000 for all other BLM activities

The Federal Land Policy and Management Act (FLPMA), also known as the Bureau of Land Management Organic Act, controls BLM's administration of more than three hundred million acres of federal lands in Alaska and in the western United States. FLPMA also contains a land exchange authority (43 U.S.C. § 1716) under which the Secretary of the Interior may exchange federal lands or interests outside National Park System units for nonfederal lands or interests within National Park System units. The NPS and BLM may use this exchange authority to acquire private mineral interests in National Park System units when appropriate.

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BLM regulations at 43 CFR Part 2200 govern federal land exchanges authorized by FLPMA. They describe the appraisal and other procedures BLM uses in conducting exchanges. However, if the enabling or exchange act for a unit remains inconsistent with these regulations, then the enabling or exchange act applies.

### **HISTORIC SITES, BUILDINGS, AND ANTIQUITIES ACT (HISTORIC SITES ACT OF 1935), 16 U.S.C. §§ 461- 467**

**Resources afforded protection:** historic sites, buildings and objects

**Applicable regulation(s):** 18 CFR Part 6; and 36 CFR Parts 1, 62, 63, and 65

This Act establishes a national policy “to preserve for public use, historic sites, buildings, and objects of national significance for the inspiration and benefit” of the American people. The Act authorizes the designation of national historic sites and landmarks, authorizes interagency efforts to preserve historic resources, and establishes fines for violations of the Act. It authorizes surveys of historic and archeological sites, buildings, and objects to determine which remain significant, and provides for the restoration, reconstruction, rehabilitation, preservation, and maintenance of historic and prehistoric properties of national significance. The Act authorizes the Secretary of the Interior, through the National Park Service, to conduct surveys and studies, to collect information, and purchase significant historic properties. The Secretary may also restore, preserve, maintain, and rehabilitate structures and sites; establish museums; and operate and manage historic sites, and develop educational programs.

### **LACEY ACT, as amended, 16 U.S.C. §§ 3371 *et seq.***

**Resources afforded protection:** fish and wildlife, vegetation

**Applicable regulation(s):** 15 CFR Parts 10, 11, 12, 14, 300, and 904

The Lacey Act prohibits the import, export, transport, sales, receipt, acquisition, or purchase of fish, wildlife, or plants that are taken, possessed, transported, or sold in violation of any federal law, treaty, regulation or Indian tribal law. The act also makes illegal importing, exporting, transporting, selling, receiving, acquiring, or purchasing in interstate or foreign commerce any fish, wildlife or plants taken, possessed, transported or sold in violation of a state law or state regulation (or foreign law for fish and wildlife, but not for plants). The Act also establishes marking requirements for containers or packages containing fish or wildlife.

The 1981 amendments to the Act strengthened federal laws and improved federal assistance to states and foreign governments for enforcement of fish and wildlife laws. The Act has significant civil and criminal penalties for violations and has emerged as a vital tool in efforts to control smuggling and trade in illegally taken fish and wildlife.

The U.S. Fish and Wildlife Service regulations implementing the Lacey Act and other related laws describe the procedures for the assessment of civil penalties (50 CFR Part 11) and for government seizure and forfeiture (50 CFR Part 12).

**MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT, 16 U.S.C. § 1801**

**Resources afforded protection:** commercial and recreational fisheries, fish habitat

**Applicable regulation(s):** none

The Magnuson Act provides for the management of the nations' fisheries within the exclusive economic zone. Regulations on commercial fishing activities are prescribed consistent with the terms of fishery management plans adopted through a collaborative process involving regional fishery management councils. Although the restrictions on commercial and recreational fishing activities are enforceable against those activities through criminal and civil sanctions, the Magnuson Act does not impose prohibitions on activities other than commercial and recreational fishing.

To improve the conservation of any essential fish habitat identified by the Secretary of Commerce, the Magnuson Act requires that each "federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat . . . ." 16 U.S.C. § 1855(b)(2). This consultation requirement provides the Secretary of Commerce with the opportunity to offer recommendations to the federal action agency on ways to avoid, mitigate, or offset the impact of the proposed action on essential habitat. While the federal agency is not bound to implement such recommendations, it must explain its reasons for not following them.

**MARINE MAMMAL PROTECTION ACT (MMPA), as amended, 16 U.S.C. §§ 1361 – 1407**

**Resources afforded protection:** marine mammals

**Applicable regulation(s):** none

The MMPA, enacted in 1972, was the first modern wildlife conservation law adopted at the federal level. Using dramatic, broad-scale moratoria on the taking and importation of marine mammals and marine mammal products, as well as the imposition of an absolute preemption on all state laws that relate to the taking of marine mammals (subject to an opportunity for transfer of management authority), the Congress adopted the MMPA to conserve these species and their marine habitats.

The MMPA prohibits the taking of marine mammals within the United States (both territorial and resource jurisdiction) and on the high seas (for persons subject to U.S. jurisdiction). No permit or authorization may be issued for the taking of a marine mammal (for activities other than commercial fishing) unless one of the following exceptions applies:

- (1) The permitted taking would be for public display purposes (non-depleted marine mammals only), scientific research, photography for educational or commercial purposes (harassment take only), or enhancing the survival or recovery of a marine mammal species or stock, consistent with the requirements of Section 104.
- (2) The Secretary of the Interior (or Commerce for cetaceans and pinnipeds other than walrus) decides to waive the taking moratorium for a particular marine mammal species or stock after determining that such species or stock is at its "optimum sustainable population"



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level and adopts regulations for such taking under Section 103 pursuant to the formal rulemaking requirements of the APA [agency rulemaking on the record with an opportunity for a formal hearing before an administrative law judge].

(3) The activity involves the non-lethal deterrence of marine mammals to prevent damage to fishing gear or catch or to other private or public property, consistent with guidelines adopted by the Secretary under Section 101(a)(4).

(4) Incidental take of small numbers of marine mammals may be authorized by regulation for specified activities that occur within a specific geographic area for a period of not more than 5 years, provided that the total of such taking will have a negligible impact on the species or stock and will not have an unmitigable adverse impact on the availability of the species for the subsistence uses of Alaska natives (if the incidental take involves harassment only, regulations are not necessary and the Secretary may issue annual authorizations).

In the event of a conflict between the terms of the Endangered Species Act and the Marine Mammal Protection Act, the more restrictive requirement of the MMPA takes precedence (16 U.S.C. § 1543).

### **MIGRATORY BIRD TREATY ACT (MBTA), as amended, 16 U.S.C. §§ 703-712**

**Resources afforded protection:** migratory birds

**Applicable regulation(s):** 50 CFR Parts 10, 12, 20, and 21

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the United States, Canada, Japan, Mexico, and Russia for the protection of migratory birds. Unless permitted by regulations, under the MBTA a person cannot attempt or succeed at pursuing, hunting, taking, capturing, or killing, possessing, offering to sell, selling, bartering, purchasing, delivering, shipping, exporting, importing, transporting, carrying or receiving any migratory bird, body part (e.g. feathers), nest, egg, or product. The U.S. Fish and Wildlife Service regulations provide procedures for obtaining a migratory bird permit (50 CFR Part 21). Regulations at 50 CFR 20 cover hunting of migratory birds, and regulations at 50 CFR Part 12 cover seizure and forfeiture procedures.

Operators and their employees should avoid actions with respect to migratory birds that could violate the Migratory Bird Treaty Act (e.g. destroying nests and eggs or picking up dead birds).

### **NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA), 42 U.S.C. §§ 4321 *et seq.***

**Resources afforded protection:** the human environment (e.g. cultural and historic resources, natural resources, biodiversity, human health and safety, socioeconomic environment, visitor use and experience)

**Applicable regulation(s):** 40 CFR Parts 1500-1508

The National Environmental Policy Act (NEPA) mandates that federal agencies assess the environmental effects of a proposed action and engage the public in the analyses of environmental impacts before agencies make decisions affecting the human environment. NEPA requires that the information aid the decision-making process. The federal agencies must complete all analyses, public input, and documentation in time to aid decision-making;

thus, it must occur before committing federal resources to the action. Initiating or completing environmental analysis after making a decision, whether formally or informally, violates both the spirit and the letter of the law.

Besides setting environmental planning policy goals, NEPA created the Council on Environmental Quality (CEQ), an agency of the president's office, as the "caretaker" of NEPA. CEQ published NEPA regulations in 1978 (40 CFR Parts 1500-1508). The CEQ regulations apply to all federal agencies and require each to "implement procedures to make the NEPA process more useful to agency decision-makers and the public" (40 CFR 1500.2). Agencies must review and update their regulations as necessary. In 1981 CEQ also published a guidance document titled "Forty Most Asked Questions Concerning CEQ's NEPA Regulations" (46 Fed. Reg. 18026, (1981)). Director's Order 12 and Handbook, finalized in 2001, is the National Park Service's guidance on implementing NEPA.

The NEPA process constitutes an essential component of planning for conservation and resource management, and of integrating scientific and technical information into management decisions. Thus, to remain effective, agencies cannot fulfill NEPA compliance by conducting an after-the-fact "compliance" effort. A well-crafted NEPA analysis provides useful information about the environmental pros and cons (i.e. impacts) of a variety of reasonable choices (alternatives) similar to economic cost-benefit analysis, technical planning, or logistical planning. It remains an essential prelude to the effective management of park resources.

NEPA represents a procedural or process-oriented statute rather than a substantive or substance-oriented statute. Yet, other substantive laws may prevent an agency from taking action or components of an action which have "too great" an impact on a particular resource. Within the NPS, the process of environmental analysis under NEPA provides the needed information to make substantive decisions for the long-term conservation of resources.

NEPA has a broad reach. NPS consideration of an action triggers NEPA regardless of whether the action could have impacts on the human environment or whether the NPS, private individuals, federal agencies, states, or local governments initiated the action. Although the CEQ regulations give less emphasis to the socioeconomic environment than the physical or natural environment, NPS the socioeconomic environment an integral part of the human environment. Consequently, NPS will do NEPA analysis even if the resulting impacts remain primarily socioeconomic, which include impacts to minority and to low-income communities as specified in Executive Order No. 12948, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1995).

When the NPS considers taking a "major federal action" such as approving a proposed 9B plan of operations, it must analyze alternatives to the action and the environmental impacts of the alternatives as directed by the National Environmental Policy Act (NEPA). NEPA must be utilized for all nonfederal oil and gas operations where access is on, across or through lands or waters controlled by the NPS. The NPS is responsible for preparing the NEPA document, but it can also be prepared by the operator or a third party contractor under the direction of the NPS.

In general, the minimum level of NEPA documentation that would be required for a proposed plan of operations would be an environmental assessment (EA). EAs must be prepared for all oil and gas operations conducted within park boundaries and for wells that are directionally drilled from outside a park to develop oil and gas within a park unit. The NPS Director's Order 12 (DO-12) and Handbook requires a minimum 30-day public review of all EAs. If based on the EA's analysis and public comments, the NPS determines that the proposed action would not

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significantly affect the human environment, then the NPS prepares a Finding of No Significant Impact (FONSI).

An EA may not be required if the proposal has already been analyzed in site-specific detail in a previous NEPA document and no different impacts or changes to the project are expected. In this case, a Memo to the File would be prepared.

If the NPS determines the proposed action would likely cause significant affects on the human environment, then an environmental impact statement (EIS) would be prepared. The NPS may prepare an EIS without first preparing an EA when it knows the action will likely cause significant environmental impacts. The NPS requires a minimum 60-day public review of all EISs. Once an EIS is completed and the public review comments have been analyzed and incorporated into the final EIS, the document would be released for a 30-day “No Action” period. During this time the NPS would prepare a decision document called a Record of Decision (ROD) on the EIS.

Another NEPA “pathway” is a “categorical exclusion.” There are no categorical exclusions that apply to 9B operations so this is not allowable for nonfederal oil and gas operations.

### **NATIONAL HISTORIC PRESERVATION ACT OF 1966 (NHPA), as amended, 16 U.S.C. §§ 470-470X-6**

**Resources afforded protection:** cultural and historic properties listed in or determined to be eligible for listing in the National Register of Historic Places

**Applicable regulation(s):** 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810

The National Historic Preservation Act (NHPA) declared a national policy of historic preservation. It encouraged preservation on the state and the private levels, authorized the Secretary of the Interior to expand and to maintain a National Register of Historic Places, established the Advisory Council on Historic Preservation, and required federal agencies to conduct studies of potential effects of their proposed actions on National Register properties and to provide the Advisory Council opportunities to comment (§ 106). The Advisory Council has promulgated regulations, “Protection of Historic and Cultural Properties,” at 36 CFR 800, to implement section 106 and presidential directives issued under it.

The NHPA also required federal agencies to identify, to evaluate, and to nominate cultural resources for inclusion in the National Register. Likewise, agencies must manage for preservation those National Register eligible or listed properties that under their jurisdiction or control.

In 1980 Congress passed a series of amendments to the NHPA and other preservation legislation. These amendments: codified portions of Executive Order No. 11593, which required inventories of federal resources and federal agency programs to protect historic resources; clarified that federal agencies can exclude inventory and evaluation of resources from the one percent fund limit under the 1974 amendments to the Reservoir Salvage Act; and authorizes federal agencies to charge federal permittees and licensees reasonable costs for protection activities.

The 1992 amendments to the Act explicitly call for Native American consultations when potential traditional cultural properties may be on federal lands. If such properties are discovered through

the consultations, they should be evaluated for possible eligibility and/or listing in the National Register of Historic Places.

The NPS must consider the potential effects of any proposed mineral activities on cultural resources listed on or eligible for listing on the National Register. This responsibility cannot be delegated to nonfederal parties. NPS regulations at 36 CFR § 9.37(e) provide that the regional director may not approve a proposed plan of operations until the NPS complies with the NHPA. NPS regulations also require that operators provide the information needed for the NPS to make the determinations required under the NHPA. Operators must submit, as part of the environmental report in the proposed plan of operations, a description of the environment to be affected, including the natural and cultural environment.

In general, the NPS will have surveyed its lands as required by section 110 of the NHPA. The NPS cultural resource survey typically constitutes a careful inspection of the ground surface. The NPS uses standard archeological methodology that may include exploratory subsurface testing. The survey determines whether the lands fulfill the eligibility requirements for listing on the National Register. Operators may obtain data gathered by the NPS surveys for the environmental report section of the proposed plan.

When an operator submits a proposed plan of operations, the NPS reviews the cultural resources section. Based upon that review, the staff's knowledge of the affected area's history and prehistory, and the NPS cultural resource surveys, the regional director determines if the operations would affect a property listed or eligible for listing on the National Register.

If the NPS finds that the operations would not affect a property listed or eligible for listing, the NPS consults with the State Historic Preservation Officer (SHPO) to obtain agreement. If the SHPO agrees with the NPS, then the regional director may issue an archeological clearance for any ground-disturbing operations on federal parklands.

However, if the NPS finds that operations would affect listed or eligible properties, then the NPS prepares an "Assessment of Effect on Cultural Resources." Next, the NPS consults with the SHPO to determine what steps to take to protect the site. If the NPS and the SHPO cannot agree on a course of action, then the matter goes to the Advisory Council on Historic Preservation. If the operation may affect a park also designated a National Historic Landmark, then the NPS must automatically consult with the Advisory Council.

Private surface owners may take any lawful action they want on their property even if the property is listed on the National Register. However, under the authority of the NPS Organic Act and certain unit enabling legislation directing the NPS to regulate mineral activity to protect natural and cultural resources, the NPS can include stipulations in its plan approval to protect cultural resources on private property inside unit boundaries during the course of mineral operations.

NPS regulations at 36 CFR § 9.47 require operators to stop all operations and to notify the superintendent if operations reveal previously unknown cultural resources. For the NPS to meet its obligations under the NHPA and the NPS Organic Act, an operator must notify the NPS of previously unknown cultural resources that may be destroyed by NPS-approved mineral activity. The notification requirement applies even though the operator may own the cultural resources. Notification gives the NPS an opportunity to judge the historic value of the resources, and, if warranted, acquire them from the owner.

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An operator under 36 CFR Part 9B may have to salvage cultural resources discovered in the course of operations. The operator may salvage the resources only after the NPS, in consultation with the SHPO, approves a mitigation and salvage plan and chooses a salvage contractor.

### **NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT (NAGPRA), 25 U.S.C. §§ 3001-3013**

**Resources afforded protection:** Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony

**Applicable regulation(s):** 43 CFR Part 10

The Native American Graves Protection and Repatriation Act (NAGPRA) protects Native American and Native Hawaiian cultural items and establishes a process for the authorized removal of human remains, funerary objects, sacred objects, and objects of cultural patrimony for sites located on lands owned or controlled by the federal government. The Act also provides for the transfer of ownership of cultural objects to Native American or Native Hawaiian individuals, organizations, or tribes. It addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by federal agencies and museums. NAGPRA contains data gathering, reporting, consultation, and permitting provisions. The Act emphasizes consultation with Native American and Native Hawaiian organizations to ensure that these entities play a major role in the treatment of specific cultural objects.

Regulations at 43 CFR Part 10 address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. They require federal agencies and institutions that receive federal funds to provide information about these items to these people and, upon presentation of a valid request, to dispose of or to repatriate these objects to them. Section 10.4 describes the regulatory requirements under NAGPRA for inadvertent discoveries of human these items.

Appendix R's "NAGPRA Compliance," and NPS Director's Order 28 - Cultural Resources Management Guideline, describes NPS-specific guidance for implementing NAGPRA. If NPS anticipates an operation may impact Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony protected by NAGPRA, then it will consult with the appropriate Native American or Native Hawaiian organization as part of the 9B plan approval process.

### **NOISE CONTROL ACT OF 1972, 42 U.S.C. §§ 4901-4918**

**Resources afforded protection:** human health and welfare

**Applicable regulation(s):** 40 CFR Part 211

The Act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. To accomplish this, the Act provides for the coordination of federal research and activities to control noise, authorizes the establishment of federal noise emission standards for products distributed in commerce, and provides information to the public respecting the noise emission reduction characteristics of such products.

The Act authorizes and directs that federal agencies, to the fullest extent consistent with their authority under federal laws administered by them, carry out the programs within their control in such a manner as to further the Act's policies. Agencies having jurisdiction over any property or facility or engaged in any activity resulting or potentially resulting in the emission of noise must comply with federal, state, interstate, or local requirements. Agencies must, upon request, furnish information to the EPA regarding the nature, scope, and results of noise research and noise control programs and must consult with EPA in prescribing standards or regulations respecting noise. The Act also provides for citizen suits. Any person may commence civil action against the United States or any government instrumentality or agency that violates any noise control requirement.

Operators must ensure that their facilities, equipment, and operations comply with any applicable federal, state, interstate, or local noise emission requirements. NPS management policies provide that the NPS will strive to preserve the natural quiet and natural sounds associated with the physical and biological resources of the parks (e.g. waves breaking on the shore, wind in the trees, or the call of the loon). NPS should prevent or minimize unnatural sounds that adversely affect park resources or values or visitors' enjoyment of them.

### **OIL POLLUTION ACT (OPA), 33 U.S.C. §§ 2701-2761**

**Resources afforded protection:** water resources, natural resources

**Applicable regulation(s):** 40 CFR Part 112; 33 CFR Parts 135, 137, and 150; 49 CFR Part 106; and 15 CFR Part 990

The Oil Pollution Act of 1990 (OPA) resulted from 15 years of congressional effort to reach a consensus on comprehensive federal oil spill legislation. The Act expands the federal role in spill response, establishes contingency planning requirements for vessels and certain facilities, establishes the Oil Spill Liability Trust Fund, increases liability for spills of oil or hazardous substances from vessels and facilities, creates requirements for double hulls on new tankers, and increases requirements research and development into spill response technologies.

OPA imposes liability for removal costs and damages resulting from discharge of oil into the U.S.'s navigable waters, its adjoining shorelines, or the exclusive economic zone. Damages incurred include injuries to natural resources, loss of natural resources, and loss of the use of natural resources. Natural resources include land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other resources belonging to the United States, state, local, foreign governments or Indian tribes.

Liability does not apply to discharges allowed by a permit issued under a federal, state or local law. In addition, liability does not apply if the responsible party establishes that the discharge, damages, or removal costs occurred solely because of an act of god, an act of war, or a third party who constitutes neither an agent nor employee of the responsible party. However, despite these defenses, the responsible party remains liable if he fails to report the incident, to cooperate as requested, to help as requested, or to comply with certain orders. Also, OPA increased penalties for regulatory noncompliance, broadened the response and enforcement authorities of the federal government, and preserved state authority to establish law governing oil spill prevention and response.

OPA provided new requirements for government and industry oil spill contingency planning. The "National Oil and Hazardous Substances Pollution Contingency Plan" (NCP) expanded to

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encompass a three-tiered approach. The federal government directs all public and private response efforts for certain types of spill events. Area Committees, composed of federal, state, and local government officials, must develop detailed, location-specific Area Contingency Plans. Owners or operators of vessels and of certain facilities that pose a serious threat to the environment must prepare their own facility response plans.

OPA may require some nonfederal oil and gas operations on units of the National Park System to develop contingency plans. Contingency plans developed to meet the requirements of OPA may also satisfy the NPS 9B requirement for a contingency plan. NPS would determine if the OPA required plan meets NPS requirements as part of the 9B plan approval process.

### **PIPELINE SAFETY ACT OF 1992, 49 U.S.C. §§ 60101 *et seq.***

**Resources Afforded Protection:** human health and safety, and the environment

**Applicable Regulation(s):** 49 CFR Parts 190-195

This comprehensive act allows the Department of Transportation (DOT) to create and to enforce oil and gas pipeline safety regulations. The act creates design, construction, maintenance, and testing standards for all new, changed, or relocated interstate and intrastate pipelines. DOT's Office of Pipeline Safety regulates interstate pipeline safety but state agencies may get approval to regulate intrastate pipelines. States that get approval to implement the program must adopt the Act; however, states may enforce stricter standards. Violations of the act can lead to civil and criminal penalties. The act replaced the Hazardous Liquid Pipeline Safety Act of 1979, the Hazardous Materials Transportation Act, and the Natural Gas Pipeline Safety Act of 1968.

Operators of oil and gas pipelines crossing units of the National Park System must comply with the Pipeline Safety Act of 1992. Pipelines for oil and gas exist within several units of the National Park System, including Lake Meredith National Recreation Area. NPS regulations at 36 CFR 9B require a 9B plan for the construction or the use of oil and gas pipelines in connection with nonfederal oil and gas operations within a unit. Likewise, the 9B regulations apply to pipeline rights-of-way that predates the unit, if the proposed pipeline is on, through, or across federally-owned or controlled lands or waters in the unit or if the pipeline does not qualify as an existing operation exempted from a plan of operations by 36 CFR § 9.33

### **RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 42 U.S.C. §§ 6901 *et seq.***

**Resources afforded protection:** natural resources, human health and safety

**Applicable regulation(s):** 40 CFR 240-280; and 49 CFR 171-179

The Resource Conservation and Recovery Act (RCRA) seeks to promote the protection of health and the environment and to conserve valuable material and energy resources. The Act constituted the first serious federal attempt to address the problems of solid waste and hazardous waste management. RCRA regulates the management of hazardous waste from generation to final disposal. The law consists of nine subtitles. Two subtitles create significant regulatory programs: Subtitle C establishes a hazardous waste program from generation to disposal; Subtitle D addresses disposal of nonhazardous solid waste. "Solid waste" includes garbage, refuse, and other discarded materials. It includes solids, liquids, and containerized gases.

The requirements of Subtitle C apply if the waste falls under EPA's criteria governing hazardous waste. EPA codified the regulatory criteria for hazardous waste at 40 CFR Parts 260 and 261. EPA codified its lists of hazardous wastes (known as listed wastes) in Subpart D of Part 261. Subpart C of Part 261 establishes the criteria for determining whether a solid waste constitutes a hazardous waste by exhibiting a characteristic of corrosivity, reactivity, ignitability, or toxicity (known as characteristic waste). EPA can regulate a solid waste because it either appears on the hazardous waste lists or displays a characteristic of a hazardous waste.

The 1980 amendments to RCRA excluded certain oil, gas, and geothermal drilling and production wastes from the hazardous waste requirements of Subtitle C. The amendments specifically exempt drilling fluids, produced water, and other drilling and production wastes. In 1988, the EPA decided to keep the exemption for exploration and production wastes. State agencies regulate the exempted wastes under the less strict Subtitle D governing nonhazardous waste.

Oil field workers must understand how RCRA works because mistakes can cost operators a lot of money. The major rule dictates that when any Subtitle C waste mixes with a Subtitle D waste the mixture becomes Subtitle C hazardous waste as well. It does not matter if the mixture loses all of its hazardous characteristics. For example, if the rig mechanic dumps used motor oil into the reserve pit, the entire volume of drilling muds, cuttings, rig wash, excess cement, and harmless completion fluids becomes a hazardous waste. This remains true even if it does not exhibit hazardous properties.

RCRA also provides for strict civil and criminal penalties. Persons who do not comply with RCRA will receive fines of as much as \$25,000 per day per violation. It does not matter whether or not EPA first served the person with a compliance order. It is up to the operator to know and comply with RCRA. The operator cannot wait to receive a compliance order and make corrections to avoid a penalty. Also, RCRA's criminal penalties can fine an operator as much as \$50,000 and imprison the operator for as many as two (2) years if they "knowingly" cause transportation of hazardous materials without a manifest.

In addition, the RCRA exemption from Subtitle C for oil and gas drilling and production waste does not exclude these wastes from the operation of RCRA section 7003. Section 7003 allows EPA to compel any person who contributed or contributes to the handling, storage, treatment, transportation or disposal of the hazardous waste in a manner that causes an imminent and substantial danger to take any action to protect human health and the environment. Because this can include expensive cleanup actions to protect human health and the environment, operators should handle waste from their operations in such a way that it does not contaminate the environment either now or in the future.

Regardless of exploration and production wastes' the exemption from Subtitle C regulation, the NPS will likely require operators to dispose of all forms of waste outside of the park. Any NPS requirements for waste disposal in an operator's plan of operations will provide for the strict protection of park resources and values.



### **RIVERS AND HARBORS ACT OF 1899, as amended, 33 U.S.C. §§ 401 et seq.**

**Resources afforded protection:** shorelines and navigable waterways, tidal waters, wetlands

**Applicable regulation(s):** 33 CFR Parts 114, 115, 116, 321, 322, and 333

Section 10 of the Rivers and Harbors Act of 1899 prohibits the unauthorized obstruction or alternation of any navigable waterway of the United States. In order to obstruct or alter the waterway, a person must obtain a permit from the Army Corps of Engineers. Activities requiring a permit include constructing structures in or over any waters of the U.S., excavating material from the water, conducting stream channelization, and depositing materials in such waters.

### **SAFE DRINKING WATER ACT OF 1974, 42 U.S.C. §§ 300F et seq.**

**Resources afforded protection:** human health, water resources

**Applicable regulation(s):** 40 CFR Parts 141-148

The Safe Drinking Water Act (SDWA) protects the safety of drinking water supplies throughout the United States by establishing national standards that states must enforce. The Act provides for the establishment of primary regulations to protect human health and of secondary regulations relating to the taste, odor, and appearance of drinking water. Primary drinking water regulations include either a maximum contaminant level (MCL) or a prescribed treatment technique that prevents adverse health effects to humans. An MCL constitutes the permissible level of a contaminant in water delivered to any user of a public water system. States should only use prescribed treatment techniques when an MCL remains uneconomical or technologically infeasible.

The Act's 1986 amendments require EPA to publish every three years a list of contaminants, which EPA knows or anticipates to occur in public water systems.

To protect underground drinking water sources, states must create underground injection control permit programs, which protect drinking water from surface placement of fluids and from subsurface injections of wastes from well operations. These programs remain significant to both the NPS and the petroleum operators. The EPA has authorized many states to administer the UIC permit program.

Owners of underground injection wells must obtain permits or receive authorization to operate the wells under the UIC program. The permit holder must prove to the state or federal permitting agency that the underground injection will not endanger drinking water sources. The NPS will approve a plan of operations involving underground injection only when the wells have valid UIC permits. The UIC program defines five classes of underground injection wells. Class II wells may relate to mineral operations in National Parks. Class II wells inject fluids brought to the surface with conventional oil and gas operations and may combine with waste waters from gas plants, used for enhanced recovery of oil and natural gas, and used for below ground storage of hydrocarbons.

**WILDERNESS ACT, 16 U.S.C. §1131 *et seq.***

**Resources afforded protection:** natural and cultural resources, wilderness character and values

**Applicable regulation(s):** none

The Wilderness Act establishes a National Wilderness Preservation System composed of designated federally owned areas. The Act requires that federal agencies administer these areas for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and to provide for their protection and the preservation of their wilderness character. The Act agrees with the resource protection mandate by which the NPS already operates. Wilderness areas can only be designated by Congress.

The Wilderness Act does not eliminate any "existing private rights" in those federal areas designated as wilderness. "Existing private rights" includes mineral ownership in National Park System units.

As long as private rights exist inside National Park System wilderness areas, the NPS may permit access in the same way the NPS permits access in non-wilderness NPS lands (that is, under 36 CFR Part 9B, and in Alaska, under 43 CFR Part 36). The NPS governs operations in connection with existing private mineral rights in wilderness just as the NPS governs operations located on non-wilderness NPS lands.

Whenever needed and possible, the NPS policy is to remove nonfederal mineral interests in wilderness through acquisition.

## **EXECUTIVE ORDERS**

**PROTECTION AND ENHANCEMENT OF THE CULTURAL ENVIRONMENT, Exec. Order No. 11593, 36 Fed. Reg. 8921 (1971)**

**Resources afforded protection:** cultural resources

Executive Order No. 11593 instructs all federal agencies to support the preservation of cultural properties. It directs them to identify and nominate to the National Register cultural properties under their jurisdiction. Moreover, they must "exercise caution...to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered."

**FLOODPLAIN MANAGEMENT OF 1977, Exec. Order No. 11988, 42 Fed. Reg. 26951 (1977)**

**Resources afforded protection:** floodplains, human health, safety, and welfare

Executive Order No. 11988 seeks to avoid, where practicable alternatives exist, the short-term and long-term adverse impacts associated with floodplain development. In carrying out agency responsibilities, federal agencies must reduce the risk of flood losses, minimize the impacts of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. If an agency proposes an action in a floodplain, then the agency

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must consider alternatives to avoid adverse effects and incompatible development in the floodplain. Agencies must also provide opportunity for early public review of any plans for actions in floodplains.

### **PROTECTION OF WETLANDS, Exec. Order No. 11990, 42 Fed. Reg. 26961 (1977)**

**Resources afforded protection:** wetlands

Executive Order No. 11990 seeks to avoid adverse impacts on wetlands when a practicable alternative exists. Executive agencies, in carrying out their land management responsibilities, must minimize wetlands destruction, loss, or degradation and preserve and enhance the wetlands' natural and beneficial values.

### **FEDERAL COMPLIANCE WITH POLLUTION CONTROL STANDARDS, Exec. Order No. 12088, 43 Fed. Reg. 47707 (1978)**

**Resources afforded protection:** natural resources, human health and safety

Executive Order No. 12088 delegates to each executive agency head the responsibility for taking all necessary actions to prevent, control, and abate environmental pollution. It gives the EPA authority to conduct reviews and inspections for the purpose of monitoring federal facility compliance with pollution control standards. Section 1-201 requires federal agencies to cooperate with state, interstate, and local agencies to prevent, to control, and to abate environmental pollution. Section 1-101 requires prevention, control, and abatement of pollution from federal facilities.

### **GOVERNMENTAL ACTIONS AND INTERFERENCE WITH CONSTITUTIONALLY PROTECTED PROPERTY RIGHTS, Exec. Order No. 12630, 53 Fed. Reg. 8859 (1988)**

**Resources afforded protection:** private property rights, public funds

Executive Order No. 12630 seeks the following: to assist agencies in reviewing their actions to prevent unnecessary takings and in proposing, planning, and implementing agency actions with due regard for the constitutional protections provided by the Fifth Amendment to the Constitution of the U.S; to account in decision-making for those takings necessitated by statutory mandate; and to reduce the risk of undue or inadvertent burdens on the federal treasury resulting from lawful government action.

When an agency requires a private party to obtain a permit to undertake a specific use of private property, any conditions imposed on the permit must substantially advance the governmental interest that is impacted by the land use. The permitting processes must be kept to the minimum necessary so that the government does not interfere with the use of private property during the process.

**FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS, Exec. Order No. 12898 (amended by Exec. Order No. 12948, 60 Fed. Reg. 6379 (1995))**

**Resources afforded protection:** human health and safety

This order requires that federal agencies incorporate environmental justice into their mission. Environmental justice promotes the fair treatment of people of all races, incomes, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should receive a disproportionate share of the negative environmental impacts from the execution of this country's domestic and foreign policy programs.

**INDIAN SACRED SITES, Exec. Order No. 13007, 61 Fed. Reg. 26771 (1996)**

**Resources afforded protection:** Native Americans' sacred sites

To the extent practicable, permitted, and consistent with essential agency functions, all federal land management agencies must accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. Consistent with this executive order, if a proposed plan of operations may affect the physical integrity of, the ceremonial use of or the access to these sites by Native American religious practitioners in federally recognized tribes, then the superintendent will consult with the tribe as part of the 9B approval process.

**INVASIVE SPECIES, Exec. Order No. 13112, 64 Fed. Reg. 6183 (1999)**

**Resources afforded protection:** vegetation and wildlife

This executive order seeks to prevent the introduction of invasive species, to provide for their control, and to minimize the economic, ecological, and human health impacts they cause. It outlines federal agency duties, creates a new Invasive Species Council, defines the council's duties, and authorizes the creation of an Invasive Species Management Plan. Executive Order No. 13112 creates a framework for planning and for coordination involving all stakeholders, which it defines as states, tribal entities, local government agencies, academic institutions, scientific communities, and non-governmental entities such as environmental groups, agricultural groups, conservation organizations, trade groups, commercial interests, and private landowners.

Federal agencies should use the programs and authorities to accomplish the following: prevent the introduction of invasive species; detect and respond rapidly to control populations of such species in a cost-effective and an environmentally sound manner; monitor invasive species populations accurately and reliably; provide for restoration of native species and habitat conditions in invaded ecosystems; conduct research on invasive species and develop technologies to prevent their introduction; provide environmentally sound control of invasive species; promote public education on invasive species and means to address them.

The order directs agencies not to authorize, to fund, or to carry out any action likely to cause or to promote the introduction or the spread of invasive species in the United States or elsewhere. However, agencies can determine that the benefits outweigh the potential harm and ensure that they take prudent measures to minimize harm. Federal agencies should consult with the

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Invasive Species Council and undertake actions consistent with the Invasive Species Management Plan with the cooperation of stakeholders.

### **RESPONSIBILITIES OF FEDERAL AGENCIES TO PROTECT MIGRATORY BIRDS, Exec. Order No. 13186, 66 Fed. Reg. 3853 (2001)**

**Resources afforded protection:** migratory birds

This executive order defines federal agency responsibilities to protect migratory bird populations, in furtherance of the purposes of the migratory bird conventions, the Migratory Bird Treaty Act (16 U.S.C. §§ 703-711), the Bald and Golden Eagle Protection Acts (16 U.S.C. §§ 668-668d), the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-666c), the Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544), the National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321-4347), and other pertinent statutes.

This executive order directs each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service that shall promote the conservation of migratory bird populations.

## **POLICIES, GUIDELINES AND PROCEDURES**

### **NATIONAL PARK SERVICE MANAGEMENT POLICIES (2001)**

**Resources afforded protection:** all resources including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, visual resources

The NPS Management Policies dictate the National Park Service's basic Servicewide policy. They provide the overall foundation, set the framework, and provide direction for management decisions within the NPS. Management policy direction may be general or specific. It may prescribe the process by which staff makes decisions, accomplish actions, or achieve results. Management Policies guide NPS staff to manage National Park System units consistently and professionally to achieve the Congressional mandate of the National Park System.

These policies cover park system planning, land protection, natural resource management, cultural resource management, wilderness preservation and management, interpretation and education, uses of the parks, park facilities, and commercial visitor uses.

### **DEPARTMENT OF THE INTERIOR, DEPARTMENTAL MANUAL DM 517 – PESTICIDES**

**Resources afforded protection:** human health and safety and the environment

DM 517 establishes Department of the Interior policy for the use of pesticides on the lands and waters under its jurisdiction and for compliance with FIFRA.

## **DEPARTMENT OF THE INTERIOR, DEPARTMENTAL MANUAL DM 519 – PROTECTION OF THE CULTURAL ENVIRONMENT**

**Resources afforded protection:** archeological, prehistoric resources, historic resources, Native American human remains, and cultural objects

DM 519 describes the policies and responsibilities of the Department of the Interior for managing, preserving, and protecting prehistoric resources, historic resources, Native American human remains, and Native American cultural objects located on Indian and public lands administered by the Department.

## **NPS DIRECTOR'S ORDER 12 AND HANDBOOK – NATIONAL ENVIRONMENTAL POLICY ACT (2001)**

**Resources afforded protection:** all resources including natural resources, cultural resources, human health and safety, socioeconomic environment, visitor use

NPS issued NEPA guidelines in 1982 (NPS-12) and has issued a revised Director's Order (DO-12). The guidelines derive from the CEQ's NEPA regulations and the Department's NEPA guidance. The Guidelines also add some requirements for environmental planning and compliance beyond those imposed by CEQ to help facilitate the requirements of the Organic Act, the other laws, and other policies that guide NPS actions.

## **NPS DIRECTOR'S ORDER 28 – CULTURAL RESOURCE MANAGEMENT**

**Resources afforded protection:** cultural, historic, and ethnographic resources

Approved in 1998, Director's Order 28 dictates the comprehensive guideline for management of cultural resources in units of the National Park Service. It elaborates on the policies articulated in the "NPS Management Policies" and offers guidance in applying federal laws and the Secretary's Standards to establish, to maintain, and to refine park cultural resource programs. Director's Order 28 establishes procedures for complying with NHPA sections 10 and 106.

Director's Order 28, Appendix R: NAGPRA Compliance provides guidance on complying with the Native American Graves Protection and Repatriation Act. Appendix R requires that an operator who inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony notify immediately the park's superintendent first by telephone and then by written confirmation. The operator must stop activity in the area of the discovery for a specified time and make a reasonable effort to protect the human remains or objects. The superintendent will notify the appropriate Native American tribes or Native Hawaiian organizations and begin consultation about the disposition of the items.

## **NPS 66 – MINERALS MANAGEMENT GUIDELINE**

**Resources afforded protection:** natural resources, human health and safety

To protect unit resources, Congress usually removes the federal lands within the National Park System from the operation of federal laws that allow for development and disposal of minerals. In addition, the NPS acquires nonfederal lands, waters, and mineral interests within unit boundaries to protect park unit resources and values. Nonetheless, many National Park

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System units contain within their boundaries nonfederally owned property or property interests, including mineral interests.

The Minerals Management Guideline provides basic background information on a broad array of minerals management issues. It discusses the NPS's legislative mandates and its minerals management policy, including its authority to acquire mineral interests. For mining claims, federal mineral leases, nonfederal oil and gas (Chapter 5), and nonfederal minerals other than oil and gas, the Guideline provides information about general laws, laws specific to the resource in National Park System units, applicability of state and local laws, and NPS responsibilities.

In addition, the Guideline covers other park system minerals management issues, including federal mineral materials, collection of minerals for noncommercial purposes, mineral assessments, mineral research, electric power transmission lines, and oil and gas pipelines. The Guideline also discusses the NPS planning process and the incorporation of minerals management into that process while describing the NPS divisions and offices with minerals management responsibilities.

Chapter 5 of NPS 66, "NPS Responsibilities Regarding Nonfederal Oil and Gas," provides guidance to the parks for evaluating proposed plans of operations, enforcing the nonfederal oil and gas regulations, and considering acquisition of nonfederal oil and gas interests. In 2001, NPS currently works to update these policies.

### **NPS 77 – NATURAL RESOURCES MANAGEMENT GUIDELINE**

**Resources afforded protection:** natural resources

NPS 77, a comprehensive guideline on natural resource management, combines existing guidance with documentation of NPS resource management practices and procedures. It guides the actions of park managers so that natural resource activities comply with federal law, federal regulation, Department of Interior policy, and National Park Service policy. Natural resources include native plants, native animals, water, air, soils, topographic features, geologic features, paleontologic resources, natural quiet, and clear night skies. In 2000, NPS currently works to update these policies.

### **NPS DIRECTOR'S ORDER 77-1 – WETLAND PROTECTION**

**Resources afforded protection:** wetlands

NPS Director's Order 77-1 and Procedural Manual implement Executive Order No. 11990, Protection of Wetlands. They establish policies, requirements, and standards to protect wetlands. Operators must perform a wetlands delineation when proposed operations could potentially cause direct and/or indirect impacts to wetlands. Cowardin et.al. (1979) is the NPS standard for identifying wetlands subject to Director's Order 77-1 policies and procedures. The Corps of Engineers and the NPS review the wetlands delineation for adequacy. When proposed operations cannot avoid direct and/or indirect impacts on wetlands, the operator must compensate for these impacts by restoring a disturbed wetlands area in the unit at a minimum 1:1 compensation ratio. The compensation ratio can be greater if the functional values of the impacted site being impacted are high and the restored wetlands will be of lower functional value. Operators must perform the compensation before or concurrently with the occurrence of

impacts associated with approved oil and gas operations. When the operator reclaims the area, he must restore the site to the pre-impact wetlands condition.

NPS must comply with Executive Order No. 11990 and the NPS wetland protection policies and procedures (Director's Order 77-1) as part of the 36 CFR 9B procedure for approving a plan of operations for nonfederal oil and gas operations within a unit of the National Park System. Note that compliance with Section 404 of the Clean Water Act does not imply compliance with DO 77-1 (i.e. it is a separate process).

## **NPS SPECIAL DIRECTIVE 93-4 – FLOODPLAIN MANAGEMENT GUIDELINE**

**Resources afforded protection:** floodplains

This guideline provides NPS policies and specific procedures for implementing Executive Order No. 11988, Floodplain Management. NPS policy seeks to restore and preserve natural floodplain values; avoid to the extent possible, the long-term and short-term environmental impacts associated with the occupancy and modification of floodplains; avoid direct and indirect support of floodplain development wherever a practicable alternative exists; minimize risk to life and property by design or modification of actions in floodplains using nonstructural methods when possible if it is not otherwise practical to place structures and human activities outside of the floodplain; and require structures and facilities located in floodplains to be designed consistently with the intent of the Standards and Criteria of the National Flood Insurance Program.

According to the Guideline's procedures, NPS should classify proposed actions into one of three action classes. Depending on the action class, either the 100-year, the 500-year, or the extreme regulatory floodplain applies. If a preliminary floodplain assessment shows that the area may experience flooding, then the NPS should delineate the applicable regulatory floodplain on a map and develop information on flood conditions and hazards.

NPS identifies and evaluates sites that do not experience flooding for all proposed actions in a regulatory floodplain. If it identifies practicable alternative sites, then NPS policy gives preference to locating the proposed action at the alternative site outside the regulatory floodplain. If no practicable alternative site exists and the importance of the location clearly outweighs NPS floodplain policies, then NPS may apply mitigation measures to actions located in the regulatory floodplain.

NPS must comply with Executive Order No. 11988 and the NPS Floodplain Management Guideline as part of the 36 CFR 9B procedure for approving a plan of operations for nonfederal oil and gas operations within a unit of the National Park System.

## **SECRETARY OF THE INTERIOR'S "STANDARDS AND GUIDELINES FOR ARCHEOLOGY AND HISTORIC PRESERVATION," 48 FR 44716 (1983) (also published as Appendix C of NPS Director's Order 28 – Cultural Resource Management)**

**Resources afforded protection:** cultural and historic resources

Prepared under the authority of sections 101(f), (g), and (h) and 110 of the National Historic Preservation Act, the Standards and Guidelines provide basic technical standards, guidelines,



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and advice about archeological and historical preservation activities and methods. While the standards and guidelines are not regulatory, NPS Director's Order 28 requires the NPS to comply with their substantive and procedural requirements.

### **GOVERNMENT-TO-GOVERNMENT RELATIONS WITH NATIVE AMERICAN TRIBAL GOVERNMENTS, Presidential Memorandum signed April 29, 1994**

**Resources afforded protection:** Native Americans

In order to ensure that NPS recognizes and respects the rights of sovereign tribal governments, this memorandum instructs each executive department and agency to operate in a government-to-government relationship with federally recognized tribes and to consult with tribal governments prior to taking any action that might affect them. The memorandum directs agencies to assess the impacts of their programs and policies on tribes and to take their rights and concerns into consideration during development of any plan, programs, or projects. NPS must also remove any impediments to working directly with tribal governments in designing agency plans, programs, and projects. Finally, it instructs agencies to try to work cooperatively to carry out the intent of the memorandum and to tailor federal programs to meet the unique needs of tribal communities.

## APPENDIX C

### SAMPLE LETTERS FOR NONFEDERAL OIL AND GAS OPERATIONS

This appendix contains letters that are commonly used by the nonfederal oil and gas operator to correspond with the National Park Service. The following letters have been prepared to assist the operator in preparing for and conducting operations in units of the National Park System:

- Operator's Right to Operate
- Request for a Temporary Access Permit
- Plan of Operations Amendment
- Change of Operator Notification (from transferring owner)
- Change of Operator Notification (from new Owner)
- Request for Waiver from Plan of Operations and Performance Bond Requirements

NOTE: In addition to the above sample letters, a model form and letter of credit for performance bonds for use by the operator are included in *Chapter 10 – Performance Bonds*.

The information that must be added by the operator to finalize the correspondence is shown in parentheses and **bold text**. There are also notes to the operator marked with “**NOTE TO OPERATOR**”.

## RIGHT TO OPERATE SAMPLE LETTER

(insert date)

Superintendent (insert name)

(insert park name)

(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

Enclosed is a copy of the (insert title of the legal instrument; i.e. **Assignment and Bill of Sale, Lease Agreement, Geophysical Exploration Permit, etc.**) that demonstrates (insert company name's) right to (insert description of type of activity; i.e. **conduct a 3-D seismic survey, or develop nonfederal oil and gas interests**) within the park.

(Insert Company name) proposes to (insert a brief description of the proposed operation and location). We would like to undertake these operations in (insert projected timeline).

Please send information, including a sample plan of operations and other associated documents, that will assist us in obtaining a permit under the National Park Service's Nonfederal Oil and Gas Rights Regulations (36 CFR Part 9, Subpart B). If you have questions, I can be reached at (insert telephone number).

Sincerely,

(insert name)

(insert title)

Enclosure

## REQUEST FOR TEMPORARY ACCESS PERMIT SAMPLE LETTER

(insert date)

Superintendent (insert name)  
(insert park name)  
(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

As per our (select one: telephone conversation, or site visit/scoping meeting) on (insert date), (insert company name) is requesting a 60-day temporary access permit for the purpose of (select one):

- ☐ collecting basic information necessary to prepare a plan of operations, pursuant to 36 CFR 9.38(a)(1);
- ☐ continuing existing operations, pursuant to 36 CFR 9.38(a)(2); or
- ☐ conducting new operations, pursuant to 36 CFR 9.38(b).

(Insert company name) proposes to (insert a brief description of the proposed activity and location). A map of the area is enclosed, showing access routes and boundary of survey(s).

**NOTE TO OPERATOR:** If requesting a 60-day data collection permit to gather information to prepare a plan of operations:

1. Describe the type of survey(s) to be conducted;
2. Give the proposed date to start survey(s) (a minimum 2-week advance is recommended). If applicable, specify if a timeframe is important; i.e. to perform a biological survey when a species is likely to be documented);
3. Provide the name(s) of the individual(s) that will conduct the survey (include qualifications, certifications, etc.);
4. Describe the type of equipment and methodology proposed to conduct the survey(s), including a description of the type of equipment/method proposed to access the survey area (on foot, by vehicle, ATV, etc.);
5. Include the statement: (Insert company name) will notify the park nonfederal oil and gas program coordinator at least 72 hours in advance of beginning work in the park; and
6. Include the statement: (Insert company name) representatives and its contractors and subcontractors will carry a copy of the temporary operating permit on them whenever performing work in the park.

## APPENDIX C – SAMPLE LETTERS

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**NOTE TO OPERATOR:** If requesting a 60-day permit to continue existing operations, include the following information:

**(Insert company name)** requests the temporary operating permit with the following disclosure and stipulations:

1. The suspension of existing operations would result in an unreasonable economic burden or injury to the (Insert company name);
2. The continuation of existing operations will be conducted in accordance with all applicable laws, and in a manner prescribed by the regional director designed to minimize or prevent significant environmental damage;
3. The Superintendent or his/her designated representative would be allowed access into the operations area at any time to perform routine inspections and monitor compliance with the temporary operating permit;
4. (Insert company name) commits that its representatives, contractors and subcontractors will carry a copy of the temporary operating permit on them whenever performing work in the park, and;
5. Within 60 days of the granting of the temporary operating permit, (insert company name) shall submit an initial substantially complete plan of operations.

**NOTE TO OPERATOR:** If requesting a 60-day permit to conduct new operations, include the following information:

**(Insert company name)** requests the temporary operating permit with the following disclosure and stipulations:

1. (Insert company name) can demonstrate a compelling reason for the failure to have had timely approval of a proposed plan of operations. (Describe compelling reason for not having had timely approval of a proposed plan of operations.)
2. (Insert company name) can demonstrate that failure to grant such approval will result in an unreasonable economic burden or injury to the (insert company name). (Describe how failure to receive a temporary operating permit would result in an unreasonable economic burden or injury to the company.);
3. The Superintendent or his/her designated representative is allowed access into the operations area at any time to inspect operations and monitor for compliance with the approved temporary operating permit;
4. (Insert company name) will notifying the park nonfederal oil and gas program coordinator at least 72 hours in advance of beginning work in the park;
5. (Insert company name) representatives, contractors and subcontractors will carry a copy of the temporary operating permit on them whenever performing work in the park, and;
6. Within 60 days of the granting of the temporary operating permit, (insert company name) shall submit an initial substantially complete plan of operations.

If you have questions, I can be reached at **(insert telephone number)**.

Sincerely,  
**(insert name)**  
**(insert title)**

Enclosure

## PLAN OF OPERATIONS AMENDMENT SAMPLE LETTER

(insert date)

Superintendent (insert name)  
(insert park name)  
(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

(Insert company name) proposes to amend its approved plan of operations for (insert title of approved plan of operations) dated (insert date plan of operations was approved – this is typically the date the NEPA Finding of No Significant Impact that was signed by the regional director). The amendment we propose is to (insert brief description). Enclosed is the amendment to the approved plan of operations. We would like to implement the amendment in (insert projected timeline).

Please review the proposed amendment to the plan of operations for technical adequacy and advise us of any additional information requirements. If you have questions, I can be reached at (insert telephone number).

Sincerely,

(insert name)  
(insert title)

Enclosure

**CHANGE OF OPERATOR NOTIFICATION  
(FROM TRANSFERRING OWNER) SAMPLE LETTER**

(insert date)

Superintendent (insert name)  
(insert park name)  
(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

(Insert company name) has been operating (insert description or title of operations) under a plan of operations approved on (insert date). Pursuant to the notification requirements of 36 CFR 9.34(a), I am notifying you that (insert company name) has (insert one: **sold, assigned, bequeathed, or conveyed**) ownership of the operations to (insert name of Company operations have been transferred to) on (insert date). Enclosed is a copy of the (insert title of the legal instrument; i.e. **Assignment and Bill of Sale, Lease Agreement, etc.**).

As specified in the legal instrument transferring ownership of the operations, (insert name of **Company that operations have been transferred to**) has assumed all responsibilities for the operations – past and present. Please send us a letter, returning the (**select: performance bond, letter of credit or other type of security tendered**) and documenting that the term of liability under the approved plan of operations has ended for (insert company name).

If you have questions, I can be reached at (insert telephone number).

Sincerely,

(insert name and title – must be signed by the  
operator, his agent, executor, or representative)

Enclosure

## CHANGE OF OPERATOR NOTIFICATION (FROM NEW OWNER) SAMPLE LETTER

(insert date)

Superintendent (insert name)  
(insert park name)  
(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

Pursuant to the notification requirements of 36 CFR 9.34(b), I am notifying you that **(insert company name)** has assumed ownership of the **(insert description or title of operations)**, from **(insert name of transferred Company)**, effective **(insert date)**. These operations were conducted under a plan of operations titled **(insert title)**, approved on **(insert date plan of operations was approved – typically this is the date the NEPA Finding of No Significant Impact that was signed by the regional director of the NPS)**.

**(Insert company name)** is ratifying the approved plan of operations of **(insert date)**, and will be bound by the terms and conditions specified in the plan. **(Insert company name)** will continue operations as described in the plan of operations; and will make no changes unless approved by the National Park Service through an amendment to the approved plan of operations. To ratify the approved plan of operations, we are enclosing:

- ☐ A list of the names and legal addresses of the following persons: The operator, and the owner(s) or lessee(s) if rights are State-owned) other than the operator (36 CFR 9.36(a)(1);
- ☐ Copy of the lease, deed, designation of operator, or assignment of rights upon which the operator's right to conduct operations is based (36 CFR 9.36(a)(2); and
- ☐ An affidavit stating that the operations planned are in compliance with all applicable Federal, State and local laws and regulations (36 CFR 9.36(a)(15).
- ☐ A (insert performance bond, letter of credit, or other acceptable type of security) in the amount of (insert dollar amount).

Please advise us of the continuing adequacy of the plan of operations, or of any specific amendments that may be needed.



## **APPENDIX C – SAMPLE LETTERS**

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**NOTE TO OPERATOR:** If the Company proposes to make changes to the operations or to conduct operations differently than described in the approved plan of operations, include a statement here to describe the Company's intent to prepare an amendment to the approved plan of operations and describe the nature of the changes to be addressed; or state that the Company intends to prepare a new plan of operations.)

If you have questions, I can be reached at **(insert telephone number)**.

Sincerely,

**(insert name and title – must be signed by the operator, his agent, executor, or representative)**

## REQUEST FOR EXEMPTION FROM PLAN OF OPERATIONS AND PERFORMANCE BOND REQUIREMENTS SAMPLE LETTER

(insert date)

Superintendent (insert name)  
(insert park name)  
(insert address)

Attn: (insert name of park's oil and gas program administrator)

Dear Superintendent (insert name):

(Insert company name) proposes to directionally drill an oil and gas well through nonfederal minerals beneath (insert name of park). The (insert name of well) would be drilled from a surface location outside the park's (describe unit or location of the park) to a bottom hole location within the (insert name of survey and abstract, county name, and state).

We understand that operators must comply with the regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B (36 C.F.R. 9B) if we are using directional drilling techniques which result in the drill hole crossing into the park boundary. In accordance with 36 CFR §9.32(e), (insert company name) is applying for an exemption from the plan of operations requirement under 36 CFR 9B regulations. For the following reasons, (insert company name) operation poses no significant threat of damage to park resources, both surface and subsurface, resulting from surface subsidence, fracture of geological formations with resultant fresh water aquifer contamination, or natural gas escape, or the like.

**NOTE TO OPERATOR:** Provide NPS with the data, studies, mitigation strategies, etc. that will demonstrate to the NPS that the operation will meet the §9.32(e) standard.

**NOTE TO OPERATOR:** A directional well would pose a significant threat of damage to park resources and values if the operation would:

- adversely impact a state or federally-listed threatened or endangered species or their habitat;
- reduce or alter wildlife species in number or composition, or change wildlife migration patterns;
- impair surface water quality to a point where state surface water quality standards are not met;
- contaminate a freshwater aquifer or allow for the exchange of water between distinct subsurface water lenses;

## APPENDIX C – SAMPLE LETTERS

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- change water flow quantity or patterns;
- cause an exceedance of an air quality increment under the Prevention of Significant Deterioration (“PSD”) provisions of the Clean Air Act;
- contaminate soils or surface waters with brine, drilling fluids, oil, or hazardous chemicals;
- change vegetation community structure or composition, including influx of non-native or exotic species;
- violate National Ambient Air Quality Standards;
- emit hydrogen sulfide or other toxic noxious gas;
- present an obvious fire hazard
- alter topography due to erosion, subsidence, or slumping; or
- damage cultural resources in the park.]

The documentation includes the following items and statements:

- name, address and telephone number of the lessee, operator, field representative, emergency contact person, and surface owner at the drilling site;
- documentation that demonstrates a right to exercise nonfederal oil and gas rights located within a park unit;
- scaled map(s) and plat(s) showing the following information in relation to the park boundary, including well name, proposed surface location of the drilling/production operation, proposed bottom hole location of the well, boundary of the oil and gas lease, boundary of the drilling unit, area topography, location of surface waters and drainage patterns, gathering line(s) and pipeline(s) for intended use (designate existing or new), and distance from well and production facility to the park boundary;
- anticipated operation timeline (e.g., estimated dates for site construction, spud, drilling, completion, etc.);
- drilling program;
- mud program including containment and disposal of drilling mud (liquids and solids) and drill cuttings;
- casing and cementing program;
- plugging program;
- copy of state drilling permit including state requirements for protection of usable-quality ground water;
- copies of other federal, state or local permits (if applicable) including supporting information; and
- proposed mitigation measures to protect park resources.

The items and statements listed above have been provided to formally process our request for an exemption for the oil and gas operation. We understand that any modification(s) to the proposed operation, or new operation, remain subject to NPS regulations at 36 C.F.R. 9B.

If you have questions or need additional information, I can be reached at **(insert telephone number)**.

Sincerely,

**(insert name and title – must be signed by the operator, his agent, executor, or representative)**

Enclosures



## **APPENDIX D**

# **GUIDELINE FOR THE DETECTION AND QUANTIFICATION OF CONTAMINATION AT OIL AND GAS OPERATIONS**

**Prepared by  
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Water Resources Division  
National Park Service  
Fort Collins, Colorado  
September, 1999**

## **I. INTRODUCTION**

This document is to be used as a guideline for collecting samples at sites within National Park Service (NPS) units where there are oil or gas operations. Samples will indicate whether or not contamination exists at the site as a result of an oil and gas operation.

It is important that specific contaminants are tested for and that specific methodology is used so that contamination is accurately defined and so that results taken at different times by different people at the same site can be reliably compared. This guideline presents methodology for analyzing soil, sediment, groundwater, and surface water.

Specifically, guidelines are presented for: 1) when owner/operators must collect samples, 2) what contaminants to test for, 3) how to collect samples, 4) quality assurance/quality control, 5) how to analyze samples in the laboratory, 6) required detection limits and choosing environmental benchmarks, and 7) sample plan and reporting requirements.

Note that in this guideline “superintendent” refers to the superintendent and/or members of his/her staff who will represent him/her on these issues. In many cases, the superintendent’s actual involvement may be only that of approving the recommendations of the staff member(s).

## **II. WHEN AND WHERE TO COLLECT SAMPLES**

The superintendent can require sampling at a site if it has recently experienced a release, has a history of releases, or the facility is operated in a manner that poses a risk of releasing crude oil, natural gas condensates, produced water, or any other “contaminating substance” associated with an oil or gas operation.

Sampling can occur at any time during or after an operation. (“After” refers to when an owner/operator sells the operation, transfers its leasing rights, or closes the operation and abandons the site.)

Sampling will be biased, not random, focussing on areas where contamination is obvious (visible) or suspected (such as near production or storage facilities). The exact sample locations and number of samples collected are site-specific and will be determined by the

## **APPENDIX D – DETECTION AND QUANTIFICATION OF CONTAMINANTS**

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Superintendent, not by the owner/operator. Owner/operators are responsible for sample collection, sample analyses, and reporting of results, not NPS.

Sample data from a nearby (but off-site) “clean” location will be needed to determine “background” concentrations at the site for the contaminants of concern. A comparison of the contaminated site data with “background” data will allow resource managers to determine how contaminated the site is. If the site has been remediated, comparisons of sample data with “background” data can indicate if the clean-up met the superintendent’s remediation goals for the site.

Note that incoming owner/operators at new or existing oil or gas operations may wish to test the site for contamination before they begin operations. If they choose to do so, it is strongly suggested they test for the contaminants and use the methodology given in this guideline so that if samples are required during or after the operation for any reason, all data can be reliably compared.

### **III. WHAT CONTAMINANTS TO TEST FOR**

Contaminating substances that can be found at oil and gas sites are primarily crude oil, natural gas condensate, produced water, drilling mud, lube (motor) oil, and solvents. The individual contaminants found in these substances are listed in Table D.1. Though other contaminants also are found in these substances, those in Table D.1 were chosen because of their greater environmental toxicity and because they are good indicators of the presence of the contaminating substance(s) of interest.

When contamination of a site by one of these six contaminating substances is being investigated, sampling and analyses for some or all of the individual contaminants found in that contaminating substance should occur. Two lists of contaminants were compiled and are designated as “Tier I” (the smaller group, indicated by “xx” in Table D.1) and “Tier II” (the more comprehensive group, indicated by both “xx” and “x”). Having two tiers to choose from allows the superintendent flexibility in what contaminants he/she requires that the operator test for. The Tier I contaminants are included in the Tier II contaminants and therefore will always be tested for.

Tier I sampling should be conducted when basic information is needed. For instance, if contamination at a site is suspected but not known, testing for Tier I contaminants will confirm this; it will also give an idea of the severity of contamination. Tier I sampling might also be conducted where park natural resources (like groundwater, vegetation, or surface water) are at low / no risk.

**Table D.1. Contaminants to test for when investigating various types of contamination at oil and gas sites.**

Contaminants that should be tested for during Tier I sampling are indicated by “xx”, while those with either an “x” or “xx” should be tested for during Tier II sampling.

contaminant	where found: soil/sediment = S groundwater/ surfacewater = W	----- Contaminating substances individual contaminants are associated with: -----					
		crude oil	condensate <sup>j</sup>	produced water	drilling mud	lube (motor) oil	solvents <sup>k</sup>
PAHs <sup>a</sup>	S, W	x	x	x	x	x	x
TPH <sup>b</sup>	S, W	xx	xx	x	x	xx	xx
BTEX <sup>c</sup>	S, W	x	xx	x	x	x	xx
metals <sup>d</sup>							
arsenic	S, W	x		x	x	x	
barium	S, W	x		xx	xx	x	
cadmium	S, W	x		x	x		
chromium	S, W	x		x	xx	x	
copper	S, W	x		x	x	x	
iron	S, W		x				
lead	S, W	x		x	x	xx	
magnesium	S, W	x		x	x	x	
mercury <sup>e</sup>	S, W	x		x	x		
nickel	S, W	xx		x		x	
selenium	S, W	x			x		
strontium	S, W	x		xx			
vanadium	S, W	xx		x	x		
zinc	S, W	x		xx	x	xx	
ammonia <sup>f</sup>	W	x		x			
calcium	W			x	x	x	
chloride	S, W			xx			
potassium	W	x		x	x		
sodium	W			x	x	x	
sulfates	W			x			
gross alpha emissions <sup>g</sup>	W			x			
radium-226 <sup>g</sup>	S			xx			
pentachlorophenol	S, W				x		
surfactants	S, W				x		
pH	S, W	x	x	x	x		
conductivity	S, W		x	xx	x		
salinity	W			xx	x		
TDS	W			x	x		
grain size	S	x	x	x	xx	x	
total organic carbon	S	x	x	x	x	x	x
percent moisture <sup>h</sup>	S	xx	xx	xx	xx	xx	xx



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contaminant	where found:	----- Contaminating substances individual contaminants are associated with: -----					
	soil/sediment = S groundwater/ surfacewater = W	crude oil	condensate <sup>j</sup>	produced water	drilling mud	lube (motor) oil	solvents <sup>k</sup>
static water level <sup>i</sup>	W	xx	xx	xx	xx	xx	xx
temperature	W	xx	xx	xx	xx	xx	xx

### Notes for Table D.1.

a = Polycyclic Aromatic Hydrocarbons. The lab analysis required in this guideline detects approximately 38 individual compounds including the priority pollutant “parent” compounds and their alkylated homologs. See Table D.2 for a full list of these. Note that these 38 compounds are measured with a single analytical test (i.e. there is not a separate test for each compound). When testing water for PAHs, do for groundwater only unless ongoing surface water contamination from adjacent contaminated soil, sediment, or aquifer is suspected.

b = Total Petroleum Hydrocarbons. Certain “ranges” of hydrocarbons should be analyzed for, depending on the contaminating substance. For crude oil, a “full range” or “wide range” TPH scan should be conducted; for natural gas condensate a “lighter end” TPH scan, like for “gasoline range organics” (GRO) or total volatile petroleum hydrocarbons (TVPH) C<sub>6</sub>-C<sub>10</sub> should be conducted; and for diesel fuel a TPH scan for “diesel range organics” (DRO) or total extractable petroleum hydrocarbons (TEPH) C<sub>11</sub>-C<sub>34</sub> should be conducted. See section VI.A for details.

c = Benzene, Toluene, Ethylbenzene, Xylene. Only test for these in soil, sediment, or surface water if contamination is very recent and sampling is for initial (preliminary) assessment purposes.

d = analyze all metals for the “total recoverable” fraction

e = analyze soil (or sediment) for mercury only if mercury manometers are suspected to have been used on-site in the past (natural gas operations only)

f = report both the “total” and “unionized” fractions

g = analyze for this only if naturally occurring radioactive materials (NORM) are suspected to occur in the oil- or gas-bearing strata in this region. Note that if gross alpha in water exceeds a certain level, further testing for radioactive elements may be required. Radium-226 analyses must use gamma spectroscopy; this test takes approx. 30 days.

h = percent moisture is necessary to calculate the required dry weight and wet weight units

i = for groundwater only

j = can be from a gas production facility or a gas pipeline

k = various solvents can be used on-site (e.g. benzene, toluene, ethylbenzene, xylene, various petroleum products, etc.). Analyte tested for depends on the particular solvent used on-site.

**Table D.2. Polycyclic aromatic hydrocarbons (PAHs) detected by the recommended “expanded scan” analysis for PAHs**

These compounds include the so-called priority pollutant “parent” compounds plus their alkylated homologs. Note that the 38 compounds below are measured with a single analytical test (that is, there is not a separate analytical test for each compound). (For more information, see section VI.A).

Acenaphthene	Dibenzothiophene, C3-
Acenaphthylene	Fluoranthene
Anthracene	Fluoranthenes/Pyrenes, C1-
Benzo(a)anthracene	Fluorene
Benzo(b)fluoranthene	Fluorene, C1-
Benzo(k)fluoranthene	Fluorene, C2-
Benzo(g,h,i)perylene	Fluorene, C3-
Benzo(e)pyrene	Ideno(1,2,3,c,d)pyrene
Benzo(a)pyrene	Naphthalene
Biphenyl	Naphthalene, C1-
Chrysene	Naphthalene, C2-
Chrysene, C1-	Naphthalene, C3-
Chrysene, C2-	Naphthalene, C4-
Chrysene, C3-	Perylene
Chrysene, C4-	Phenanthrene
Dibenzo(a,h)anthracene	Phenanthrenes/Anthracenes, C1-
Dibenzothiophene	Phenanthrenes/Anthracenes, C2-
Dibenzothiophene, C1-	Phenanthrenes/Anthracenes, C3-
Dibenzothiophene, C2-	Phenanthrenes/Anthracenes, C4-

Tier II sampling should be conducted when more detailed information is needed. For instance, if clean-up activities at a site have been completed, testing for Tier II contaminants will confirm if all (or nearly all) the contaminants have, in fact, been removed. Tier II sampling might also be conducted at sites where important Park natural resources are at a higher risk of being exposed to contaminants and impacted.

The Superintendent will determine whether Tier I or II is needed. Some combination of the two may also be used. He/she may also choose to omit or add contaminants to the Tier I or II lists should the situation warrant it.

Note that Table D.1 does not include all possible contaminants associated with oil or gas operations. Other contaminating substances involved are: caustic solutions used in natural gas sweetening (these can contain sodium, pH, amines, and EDTA contaminants); glycols used in natural gas dehydration; and surfactants, acidizing agents, corrosion inhibitors, solvents, biocides, etc. used in oil or gas well workover and completion. The Superintendent may require that contaminants associated with these substances be tested for if they are suspected of having been released on-site.

## IV. HOW TO COLLECT SAMPLES

### A. SAMPLE LOCATIONS

#### 1. Soil

Background samples should be collected from an area as close to the site as possible where it is certain no contaminating substances from the site could have reached (from surface runoff, off-site dumping, migration from wind, etc.).

For soils that are known to be contaminated, samples should be collected from the spot and depth where contamination appears to be highest. For sites where soils are suspected of being contaminated, seek out areas near production facilities, storage tanks, valves, etc., and adjacent low points in the topography where contaminated runoff may have passed over or “puddled up” and concentrated. Collect sample at a depth where contamination would be highest: in most cases probably the top one to two inches. Note that releases in very porous (e.g. sandy) soil may percolate down and concentrate in deeper, less porous soil layers.

For sites where removal of contaminated soils has already occurred, sample should be collected in the top inch or so of the newly exposed soil to insure that all the contaminants that percolated down into the soil were, in fact, removed.

All samples will be grab samples. (As a rule, composite samples should not be collected.) Where contamination is suspected but not known, the sampling device probably should be some type of tube or auger in order to capture equal amounts of soil over the depth of the profile; depending on the properties of the soil (like how hard or rocky it is), however, other devices (like a trowel) may work better. Sample collectors may have to communicate with the laboratory to ensure that enough soil is collected for the various analyses.

For BTEX samples, see section B.1. below.

The total number of samples to be collected will be site-specific and determined by the Superintendent. Enough samples should be collected and analyzed to meet the Tier I or Tier II sampling objective (see section III).

#### 2. Sediment

Background samples should be collected from sediment adjacent to the sediments in question, but where it is reasonably certain no contaminating substances from the site (or other sites in the area) could have reached (from surface runoff, off-site dumping, etc.).

As with soils, sediments known to be contaminated should be sampled from the spot and depth where contamination appears to be highest. For sediments suspected of being contaminated, seek out areas near production facilities, storage tanks, valves, etc., and adjacent areas where potentially contaminated sediment in runoff could have settled out. Sample the sediment that has accumulated since the spill/release began. In some cases this may be the top ¼ inch, in others it may be the top several inches.

For sites where removal of contaminated sediments has already occurred, samples should be collected in the newly exposed sediment to insure that all contaminants were, in fact, removed.

All samples will be grab samples. (As a rule, composite samples should not be collected.) Where contamination is suspected but not known, or the layer of contaminated sediment is more than a couple inches thick, the sampling device probably should be some type of tube or auger in order to capture equal amounts of sediment over the depth of the profile; depending on the properties of the sediment (like how rocky it is) and the depth of the water, however, other devices may work better. Sample collectors may have to communicate with the laboratory to ensure that enough sediment is collected for the various analyses.

The total number of samples to be collected will be site-specific and determined by the Superintendent. Enough samples should be collected and analyzed to meet the Tier I or Tier II sampling objective (see section III).

### **3. Groundwater**

Groundwater samples should be collected if the Superintendent determines that hydrogeological conditions at the site are such that groundwater resources under or near the site are reasonably at risk. Samples can be collected either via established monitoring wells or with “push” technology (such as Geoprobe®).

It is critical that: a) sampling occurs in the right areas (for example, one location must be upgradient of the potential point of impact and at least two must be downgradient); and b) wells are finished at the appropriate depths to intercept any contaminant plume(s). (This will require knowledge of the local hydrogeology and the contaminants involved and their environmental fate characteristics). If “push” technology is used and samples are collected on more than one occasion, care must be taken to sample the exact same locations and at the same depths in the aquifer.

“Low-flow” sample collection methods should be used as per the EPA guidance document in IV.B.3 below.

Groundwater samples should not be filtered.

For BTEX samples, see section B.3. below.

All samples will be grab samples. (As a rule, composite samples should not be collected.) Sample collectors may have to communicate with the laboratory to ensure that enough sample is collected for the various analyses.

The total number of samples to be collected will be site-specific and determined by the Superintendent. Enough samples should be collected and analyzed to meet the Tier I or Tier II sampling objective (see section III).

### **4. Surface Water**

Background samples should be collected upstream of any possible inputs of contaminated water (e.g. surface runoff or shallow groundwater) from the site.

Where contamination is obvious, such as in a surface sheen, collect samples right at the surface, avoiding any scum, algae, or other detritus on the water surface if possible (and note in fieldbook if present). Where a contaminating substance (such as a dense nonaqueous phase liquid, or DNAPL) is visible or suspected at the bottom of the water column, then collect samples

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at that depth. For surface water suspected of being contaminated but it is unknown whether the contaminants are “floaters” or “sinkers,” collect samples at a depth of 3-12 inches.

For BTEX samples, see section B.4. below.

All samples will be grab samples. (As a rule, composite samples should not be collected.) Sample collectors may have to communicate with the laboratory to ensure that enough sample is collected for the various analyses.

The total number of samples to be collected will be site-specific and determined by the Superintendent. Factors such as flow, depth, and the size of the water body are important here. Enough samples should be collected and analyzed to meet the Tier I or Tier II sampling objective (see section III).

### **B. SAMPLE COLLECTION METHODOLOGIES**

Acceptable sampling methodology must be used so that results are as representative as possible. Sample collection can be complex and should be conducted by experienced professionals (typically a contractor). This could also help if the values or methods are challenged by one of the parties involved. Furthermore, experienced professionals are also trained in the appropriate precautions to protect the health and safety of the sample collector(s) from exposure to potentially harmful contaminants or situations.

Methodologies published by recognized organizations should be used. Acceptable methodologies are listed below for each environmental media (soil, sediment, etc.). If sample collection methodologies other than these are used, they must contain the following to be acceptable: 1) Applicability of the procedure, 2) Equipment required, 3) Detailed description of procedures to be followed in collecting the samples, 4) Common problems encountered and corrective actions to be followed, and 5) Precautions to be taken. The methodology to be used must be cited in the sample plan. A basic description of collection methodology should be included in the report to the Superintendent (section VIII).

#### **1. Soil**

Methods from source documents published by the following organizations are acceptable:

- U.S. EPA
- American Society for Testing and Materials
- U.S. Department of the Interior
- American Petroleum Institute

Note that when collecting soil samples for BTEX analysis, specialized equipment and collection methods are necessary. Use a coring device such as the EnCore™ sampler or disposable plastic syringes. For detailed guidance, see section 4.1 and method 5035 in Chapter 4 of EPA’s SW-846, Update III (full reference in section VI.A. below).

#### **2. Sediment**

Methods from source documents published by the following organizations are acceptable:

- U.S. EPA
- American Society for Testing and Materials
- U.S. Department of the Interior
- American Petroleum Institute

### **3. Groundwater**

Use:

Environmental Protection Agency. 1992. RCRA Ground-Water Monitoring: Draft Technical Guidance. EPA/530/R-93-001. Office of Solid Waste, EPA, Washington, D.C.

“Low-flow” sampling should be conducted; for guidance, see:

Puls, R.W. and M.J. Barcelona. 1996. Ground Water Issue: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. EPA/540/S-95/504. Office of Solid Waste and Emergency Response, EPA, Washington, D.C.

Note that when collecting water samples for BTEX analysis, specialized equipment and collection methods are necessary. For detailed guidance, see section 4.1 and method 5030B in Chapter 4 of EPA’s SW-846, Update III (full reference in section VI.A. below).

### **4. Surface Water**

Methods from source documents published by the following organizations are acceptable:

- U.S. EPA
- American Society for Testing and Materials
- U.S. Department of the Interior
- American Petroleum Institute

Also recommended is this NPS guidance:

Stednick, J.D. and D.M. Gilbert. 1998. Water quality inventory protocol: Riverine environments. National Park Service, Water Resources Division, Technical Report no. NPS/NRWRD/NRTR-98/177. Fort Collins, CO, 103 pp.

Note that when collecting water samples for BTEX analysis, specialized equipment and collection methods are necessary. For detailed guidance, see section 4.1 and method 5030B in Chapter 4 of EPA’s SW-846, Update III (full reference in section VI.A. below).

## **C. SAMPLE CONTAINERS, PRESERVATION, STORAGE**

Refer to documents listed in sections VI.A. below and IV.B. above for specific guidance, including 40 CFR Part 136, if necessary. EPA’s SW-846, Update III is especially helpful.

Note that sediment samples should not be acidified for metals and that neither groundwater nor surface water samples should be filtered. Remember special conditions when sampling for BTEX (see section 4.1 and methods 5030 and 5035 in Chapter Four of SW-846, Update III) and for any metals requiring unusually low detection limits.

## **D. CHAIN OF CUSTODY**

Proper chain-of-custody procedures must be used in sample handling (collection, shipping, storage, analysis). For examples, see Standard Methods for the Examination of Water and Wastewater for general guidance, and SW-846, Update III, Chapter 9, section 9.2.2.7 for detailed guidance.

## **V. QUALITY ASSURANCE / QUALITY CONTROL**

Quality assurance/quality control (QA/QC) plans ensure that the data generated are scientifically valid, defensible, and of known precision and accuracy. Some of the basic elements of QA/QC plans are:

- data quality objectives (DQO)
- field operating procedures (such as sample management, decontamination, equipment calibration, etc.)
- field QA/QC requirements (such as data handling, collection of control samples like blanks, spikes and duplicates, etc.)
- lab operating procedures (such as sample management, equipment calibration, etc.)
- lab QA/QC procedures (such as data handling, control samples, etc.).

A QA/QC plan should be in place before any sampling begins. Basic QA/QC procedures to be followed should be described briefly in the sample plan (section VIII). If a certain QA/QC guidance document is used, it should be cited in the sample plan. Many guidance documents are available—several through EPA—including the following, recommended here:

Environmental Protection Agency. 1997. Test methods for evaluating solid waste, physical/chemical methods (SW-846), 3<sup>rd</sup> edition, Update III, Chapter One. EPA Office of Solid Waste and Emergency Response, EPA, Washington, D.C.

Adherence to the QA/QC plan should be documented throughout the project and demonstrated in the final report to the Superintendent.

Aspects of quality assurance that may be helpful can be found in:

Environmental Protection Agency. 1996. The volunteer monitor's guide to quality assurance project plans. EPA Office of Wetlands, Ocean and Watersheds 4503F. EPA publication number: EPA 841-B-96-003. Also available at: <http://www.epa.gov/owow/monitoring/volunteer/qappcover.htm>

## **VI. HOW TO ANALYZE SAMPLES IN THE LABORATORY**

### **A. ANALYTICAL METHODS**

Metals analyses must use the methods in EPA's SW-846, Update III (or more recent). This applies to soil, sediment, groundwater, and surface water samples. Groundwater and surface water methods can also include EPA's 200 series for metals, or the 1600 series where extremely low (state-of-the-art) detection limits are desired. The full reference for the SW-846 document is:

Environmental Protection Agency. 1997. Test methods for evaluating solid waste, physical/chemical methods (SW-846), 3<sup>rd</sup> edition, Update III. EPA Office of Solid Waste and Emergency Response, EPA, Washington, D.C.

Polycyclic aromatic hydrocarbon (PAH) analyses must use a modification of method 8270 in EPA's SW-846, Update III. Developed by the National Oceanic and Atmospheric Administration (NOAA), this method is referred to as "GC/MS method 8270 in selective ion mode (SIM)", and is

## APPENDIX D – DETECTION AND QUANTIFICATION OF CONTAMINANTS

informally referred to as the “expanded scan” for PAHs. Consult the following for a detailed explanation of methodology:

Lauenstein, G.G., and A.Y. Cantillo (1998). Sampling and analytical methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 update. NOAA Technical Memorandum NOS ORCA 130. 233 pp.

Total petroleum hydrocarbons (TPH) analyses will be for certain “ranges” of hydrocarbons, depending on the contaminating substance present. For crude oil, a “wide range” or “full range” TPH scan should be conducted to measure the heavier fractions. For natural gas condensate a “lighter end” TPH scan, such as for “gasoline range organics” (GRO), should be conducted. For diesel fuel, a TPH scan for “diesel range organics” (DRO) should be conducted to measure the mid-range fractions. Although many analytical methods are available for TPH, samples should be analyzed using only GC/FID (gas chromatograph/flame ionization detection) methodology. Method 8015B in EPA’s SW-846, Update III is highly recommended.

Benzene, toluene, ethylbenzene, and xylene (BTEX) analyses should use method 8260B in EPA’s SW-846, Update III.

Ammonia analyses should use EPA method 350.1 (or equivalent APHA method 4500-NH<sub>3</sub> H, or USGS method 4523-85). Samples should not be filtered.

For all other contaminants in Table D.1, use methods approved in 40 CFR Part 136 (EPA, Standard Methods for the Examination of Water and Wastewater (latest edition), ASTM, or USGS). Methods in the NPS, Water Resources Division “Water quality inventory protocol” (section IV.B.4 above) can also be used.

### B. LABORATORIES

Samples must be sent to an experienced lab that can: 1) perform the above analytical methods; 2) achieve the required detection limits (section VII below); 3) perform the required QA/QC procedures (section V above); and 4) provide the information required in the sample plan and the final report to the Superintendent (section VIII below).

Note that in regards to the PAH analytical method (as specified in VI.A. above), only a few labs nationwide (perhaps a dozen) currently can perform this analysis. Many of these same labs can also “fingerprint” samples; that is, by analyzing hydrocarbon-contaminated samples, they can identify the type and source of the petroleum product at the site. A partial list of these labs follows (no government endorsement implied):

Arthur D. Little, Inc.  
25 Acorn Park  
Cambridge, MA. 02140  
(617) 498-5000

Battelle Marine Science Lab  
1529 West Sequim Bay Rd.  
Sequim, WA. 98382  
(360) 683-4151

Geochemical and Environmental Research Gp.

Texas A&M University  
833 Graham Rd.  
College Station, TX. 77845  
(409) 862-2323 ext. 115

Woods Hole Group, Environmental Labs  
375 Paramount Drive, Suite B  
Raynham, MA. 02767-5154  
(508) 822-9300 or 563-5030



## VII. DETECTION LIMITS

Note: The term “detection limit” used herein refers to what is commonly called the “reporting limit” and occasionally called the “quantitation limit.” It does not refer to the much lower “instrument detection limit” or “method detection limit.”

Labs should achieve the detection limits (DLs) in Table D.3 below. These DLs are below federal (and presumably state) standards and most other criteria currently in the literature. Therefore, analytical methods that achieve these DLs will be able to indicate if most standards and criteria are being met. Note, however, that the DLs for two contaminants—PAHs and mercury—are above some of the more strict standards or criteria that exist. This is because many labs cannot achieve DLs this low, and the DLs in the table were chosen so that most experienced and well-equipped labs could achieve them. Lower DLs are achievable for PAHs and mercury at some labs that have the expertise and special instrumentation (see section VI.B. above for examples).

If the natural resources at or near the site are particularly sensitive, pristine, or important to the Park, the Superintendent may wish to choose the strictest available standard or criteria as the remediation goal. He/she would then have to request some lower DLs (lower than those in Table D.3) from the lab for PAHs and mercury.

For the contaminants in Table D.1 that are not listed in Table D.3, commonly reported DLs are acceptable.

**Table D.3. Maximum acceptable detection limits (“reporting limits”) for surface water, groundwater, soil, and sediment samples.**

Note: Lower detection limits are also acceptable.

<b>Contaminant</b>	<b>Detection limit for surface water and groundwater samples</b>	<b>Detection limit for soil and sediment samples (dry weight)</b>
PAHs	10 ppt <sup>a</sup>	1 ppb <sup>c</sup>
TPH	50 ppb	0.1 ppm
benzene	1 ppb	25 ppb
toluene	5 ppb	25 ppb
ethylbenzene	5 ppb	25 ppb
xylene	5 ppb	25 ppb
ammonia	0.05 ppm	--
arsenic	1 ppb	1 ppm
cadmium	0.5 ppb	0.2 ppm
chromium	3 ppb	1 ppm
copper	5 ppb	1 ppm
iron	0.1 ppm	10 ppm
lead	1 ppb	5 ppm
mercury	0.2 ppb <sup>b</sup>	0.2 ppm <sup>d</sup>
nickel	5 ppb	5 ppm
selenium	1 ppb	1 ppm
strontium	10 ppb	5 ppm
vanadium	10 ppb	1 ppm
zinc	10 ppb	5 ppm

water units:

ppm = parts per million = milligrams per liter = mg/L

ppb = parts per billion = micrograms per liter = ug/L

ppt = parts per trillion = nanograms per liter = ng/L

soil/sediment units:

ppm = parts per million = milligrams per kilogram = mg/kg = micrograms per gram = ug/g

ppb = parts per billion = micrograms per kilogram = ug/kg = nanograms per gram = ng/g

a - DLs as low as 1 ppt may be achievable

b - DLs as low as 0.1 ppb, or even 10 ppt, may be achievable

c - DLs as low as 0.25 ppb may be achievable

d - DLs as low as 25 ppb, or even 1 ppb, may be achievable

For an extensive list of federal standards and other published environmental criteria for most of the contaminants in Table D.1, consult NPS Water Resources Divisions’ “Environmental Contaminants Encyclopedia” at the website <http://www.aqd.nps.gov/toxic>. Note that there may be state standards, other criteria, or in some cases, updated federal standards that are not listed in this Encyclopedia.

## VIII. SAMPLE PLAN AND REPORTING REQUIREMENTS

### A. SAMPLE PLAN

The owner/operator should submit a brief sample plan to the Superintendent for approval before samples are collected. The plan must include:

- sampling objectives (such as, “identify contaminants and concentrations involved,” “determine spatial extent of spill,” “determine if remediation is complete,” etc.)
- the contaminating substances being investigated (such as crude oil, natural gas condensate, produced water, etc.)
- list of individual contaminants that will be tested for (see Table D.1)
- analytical methods to be used (see section VI. A.)
- type of samples to be collected (such as soil, sediment, groundwater, or surface water)
- citation and brief description of sample collection methodology to be used (see section IV. B.)
- specific sample locations and number of samples at each (Superintendent will walk the site and choose exact locations; this information may not be available until the time when samples are actually collected)
- total number of samples (this information may not be available until the time when samples are actually collected)
- acknowledgment that detection limits (that is, “reporting limits”) specified herein (section VII) will be achieved
- brief description of QA/QC procedures to be followed and citation of any guidance document used (see section V)
- acknowledgment that proper chain-of-custody procedures will be initiated and followed

### B. REPORTING REQUIREMENTS

Upon completing sample collection and analyses, the owner/operator shall submit a report to the Superintendent. This report shall include:

- sample ID number/name
- description of sample locations (include maps, sketches, or photos)
- sample depth
- brief description of spill area (apparent extent of spill, topography, vegetation, surface water features, apparent soil conditions, etc.)
- date and time of sampling
- name of sample collector
- information pertinent to the sample collection methodology used (sampling devices used, how samples were collected, etc.)
- sample containers used, any preservation methods, and storage conditions of samples
- date and time of analyses
- name of chemist/technician performing analyses
- type of sample (soil, sediment, groundwater, or surface water)
- sample fraction measured (such as “total”, “total recoverable”, etc.)
- analytical results and units (mg/kg, µg/L, etc.)
- percent moisture (for soil/sediment samples)
- wet weight *and* dry weight units (for soil/sediment samples)

- analytical methods used
- detection limits (that is, “reporting limits”) achieved
- method detection limits (MDL) for the analytical methods used
- indication of analyses done in the field (such as pH, conductivity, etc.)
- field observations made while collecting samples
- lab and field QA/QC results and procedures followed
- name of analytic equipment used
- appropriate chain-of-custody forms

## **SPILL RESPONSE AND NOTIFICATION PROCEDURE FOLLOWING RELEASE OF A CONTAMINATING SUBSTANCE FROM A NONFEDERAL OIL AND GAS OPERATION IN A PARK UNIT**

### **A. INITIAL PARK STAFF ACTIONS FOLLOWING DISCOVERY OF A RELEASE**

1. Secure the area to protect human health and safety
2. Notify operator of the release and immediate need to control the source and contain the release, and obtain information on the released substance
3. Initial site assessment to identify park resources potentially at risk from the release (surface water, wetlands, cultural resources, etc.), and quantity of released substance
4. Direct operator during initial spill containment actions to protect natural and cultural resources at risk, and to protect human health and safety
5. Notify Regional Spill Response Coordinator and relay all pertinent information
6. Obtain 5 liter sample of released substance (Note: need preservation and storage guidance for park staff) and initiate chain of custody documentation
7. Continue to oversee operator containment actions and maintain security
8. Park superintendent advises operator that the operation is immediately “suspended” pursuant to NPS regulations at 36 CFR §9.51(c)(2)
9. Park staff prepares a detailed Case Incident Report on the spill event

### **B. REGIONAL SPILL RESPONSE COORDINATOR NOTIFICATION DUTIES**

1. Contact National Response Center to advise of release and obtain case number
2. Notify Environmental Quality Division (Dan Hamson), Geologic Resources Division (Jim Woods), Regional Minerals Coordinator, and Water Resources Division (Pete Penoyer, Roy Irwin, Gary Rosenlieb or Mark VanMouwerik) if release threatens water resources
3. Coordinate a conference call with above technical offices and park staff to define appropriate course of action relative to spill containment, public health and safety, site assessment, damage assessment, and operator responsiveness and capability
4. Notify pertinent state regulatory agencies and state trustees

**C. COORDINATION OF RESPONSE, CLEAN-UP AND DAMAGE ASSESSMENT**

1. All involved NPS staff track time and all other expenditures associated with the spill event
2. Park superintendent prepares formal suspension notice for Regional Director's signature in accordance with NPS regulations at 36 CFR §9.51(c)(2)
3. Park staff coordinates with designated On Scene Coordinator (EPA, Coast Guard, or NPS staff expert if EPA or Coast Guard does not dispatch a coordinator) and state regulatory agencies to oversee operator spill response and initial clean-up actions
4. Park staff coordinates with On Scene Coordinator (OSC) and state trustee agencies in the conduct of resource damage assessment (Note: operator may contract with approved consulting firm/laboratory to conduct assessment work)
5. All involved NPS offices evaluate site assessment results and reach consensus on additional remediation actions and reclamation goals, and communicate recommendations to park superintendent. (Note: NPS regulations at 36 CFR §9.39(a)(1)(i) and §9.39(a)(2)(iii) require operators to remove or neutralize any contaminating substance)
6. Park staff coordinates with OSC and state trustee agencies in monitoring remediation and reclamation actions
7. Park superintendent and NPS technical working group evaluates final remediation/reclamation success and determines if further legal action against the operator is required (Note: operators are liable for any damages to federally-owned or controlled lands, waters or resources pursuant to 36 CFR §9.51(a)).

## **APPENDIX E**

### **NATIONAL PARK SERVICE NONFEDERAL OIL AND GAS PROGRAM CONTACTS**

#### **WASHINGTON OFFICE, GEOLOGIC RESOURCES DIVISION**

Dave Shaver, Chief, telephone 303-969-2094

Jim Woods, Branch Chief, Mineral Operations Branch, telephone 303-969-2635

Lisa Norby, Petroleum Geologist, telephone 303-969-2318

Pat O'Dell, Petroleum Engineer, telephone 303-969-2013

Carol McCoy, Branch Chief, Policy and Regulations Branch, telephone 303-969-2096

Ed Kassman, Environmental Protection Specialist, telephone 303-969-2146

#### **REGIONAL MINERALS COORDINATORS**

**Intermountain Region** (covers MT, WY, UT, CO, AZ, NM, OK, and TX)

Linda Dansby, telephone 505-988-6095

**Midwest Region** (covers ND, SD, NE, KS, MN, IA, MO, AR, WI, IL, MI, IN, OH)

Mike Gallagher, telephone 402-221-3418

**Southeast Region** (covers LA, MS, TN, AL, NC, SC, GA, FL)

Rebecca McCune, telephone 404-562-3113 (ext 532)

#### **PARKS WITH NONFEDERAL OIL AND GAS OPERATIONS**

**Aztec Ruins National Monument (NM)**

Superintendent, Stephanie DuBois, telephone 505-334-6174

Chief of Resource Management Terry Nichols, telephone 505-334-6174 (ext. 23)

**Big Cypress National Preserve (FL)**

Superintendent, John Donohue, telephone 941-695-1101

Chief of Resource Management, Ron Clark, telephone 941-695-1106

Natural Resource Specialist, Don Hargrove, telephone 941-695-1150

**Big South Fork National Recreation Area (TN)**

Superintendent, Reed Detring, telephone 423-569-9778

Chief of Resource Management, Tom Blount, telephone 423-569-2404 (ext. 252)

Biological Science Technician, Etta Spradlin, telephone 423-569-2404 (ext. 254)

## **APPENDIX F – NPS OIL AND GAS CONTACTS**

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### **Big Thicket National Preserve (TX)**

Superintendent, Pete Peterson, telephone 409-839-2689

Chief of Resource Management, Doug Neighbor, telephone 409-839-2689 (ext. 224)

Environmental Protection Specialist Doug Hutter, telephone 409-839-2689 (ext. 232)

### **Cuyahoga Valley National Park (OH)**

Superintendent, John Debo, telephone 216-524-1497

Chief of Resource Management and Visitor Protection, Brian McHugh, telephone 440-546-5940

Biologist, Meg Benke-Plona, telephone 330-342-0764

### **Gauley River National Recreation Area (WV)**

Superintendent, Calvin Hite, telephone 304-465-0508

Natural Resource Specialist, John Perez, telephone 304-465-6537

### **Gulf Islands National Seashore (AL and MS)**

Superintendent, Jerry Eubanks, telephone 904-934-2604

Natural Resource Specialist, Riley Hoggard, telephone 850-934-2617

### **Jean Lafitte National Historical Park (LA)**

Superintendent, Geraldine Smith, telephone 504-589-3882 (ext. 137)

Chief of Resource Management, David Muth, telephone 504-589-3882 (ext. 128)

Natural Resource Management Specialist, Bill Hulslander, telephone 504-589-3882 (ext. 119)

### **Lake Meredith National Recreation Area (TX)**

Superintendent, Karren Brown, telephone 806-865-3887

Chief of Resource Management, Jim Rancier, telephone 806-857-0309

Environmental Protection Specialist Paul Eubank, telephone 806-865-3874 (ext. 35)

### **New River Gorge National River (WV)**

Superintendent, Calvin Hite, telephone 304-465-0508

Natural Resource Specialist, John Perez, telephone 304-465-6537

### **Obed Wild and Scenic River (TN)**

Unit Manager, Kristin Stoehr, telephone 423-346-6294

Biological Science Technician, Etta Spradlin, telephone 423-569-2404 (ext. 254)

### **Padre Island National Seashore (TX)**

Superintendent, Jock Whitworth, telephone 361-949-8173 (ext. 222)

Chief of Resource Management and Science, Ken McMullen, telephone 361-949-8173 (ext. 227)

Environmental Protection Specialist Arlene Wimer, telephone 361-949-8173 (ext. 224)

### **Tallgrass Prairie National Preserve (KS)**

Superintendent, Steve Miller, telephone 620-273-6034

Natural Resource Specialist, vacant

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## GLOSSARY

**abandonment** – the termination of oil and gas production operations, removal of facilities, plugging of the well bore, and reclamation of surface disturbances.

**access** – any way, means, or method of entering or traversing on, across, or through federally owned or controlled lands or waters (36 CFR §.30(a)), including but not limited to: vehicle, watercraft, fixed-wing aircraft, helicopter, offroad vehicle, mobile heavy equipment, snowmobile, pack animal, and foot.

**action** – any federal activity including (but not limited to) acquiring, managing, and disposing of federal lands and facilities; facilitating human occupation or visitation; providing federally undertaken, financed, or assisted construction and improvements; and conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, and regulating and licensing activities.

**affected environment** – term used in the National Environmental Policy Act (NEPA) to denote surface or subsurface resources (including social and economic elements) within or adjacent to a geographic area that could potentially be affected by a proposed action; the environment of the area to be affected or created by the alternatives under consideration. (40 CFR § 1502.15)

**alternative** – combination of management prescriptions applied in specific amounts and locations to achieve desired management goals and objectives.

**alternative, no-action** – an alternative that maintains established trends or management direction. For an oil and gas operation it typically means that the action as proposed would not occur.

**aquifer** – a water-bearing rock, rock formation, or group of formations. Aquifers can be either unconfined or confined.

**base flood** – a flood which has a one percent chance of occurring in any given year (also known as the 100-year flood). This term is used by the National Flood Insurance Program to indicate the minimum level of flooding to be used by a community in its floodplain management regulations.

**base floodplain** – 100-year floodplain.

**blowout** – an uncontrolled explosion of gas, oil, or other fluids from a drilling well. A blowout occurs when formation pressure exceeds the pressure applied to it by the column of drilling fluid and when blowout prevention equipment is absent or fails.

**blowout preventer (BOP)** – one of several valves installed at the wellhead to prevent the escape of pressure either in the annular space between the casing and drill pipe or in open hole (i.e., hole with no drill pipe) during drilling or completion operations.

**brine** – water containing relatively large concentrations of dissolved salts, particularly sodium chloride. Brine has higher salt concentrations than ocean water.



## GLOSSARY

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**cement casing** – to fill the annulus between the casing and hole with cement to support the casing and prevent fluid migration between permeable zones.

**Christmas tree** – the control valves, pressure gauges, and chokes assembled at the top of a well to control the flow of oil and gas after the well has been completed.

**Code of Federal Regulations (CFR)** – a publication that codifies the general and permanent rules and regulations published in the Federal Register by the Executive Branch departments and agencies of the federal government, and which carry the force of law.

**completion** – the activities and methods to prepare a well for production. Includes installation of equipment for production from an oil or gas well.

**conditions of approval (COAs)** – provisions or requirements under which a Plan of Operations is approved.

**contaminating substance** – those substances, including but not limited to, saltwater or any other injurious or toxic chemical; waste oil or waste emulsified oil; basic sediment; mud with injurious or toxic substances produced or used in the drilling, development, production, transportation, or on-site storage, refining, and processing of oil and gas.

**critical habitat** – the specific areas within the geographical area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of the Endangered Species Act, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed...upon a determination by the Secretary that such areas are essential for the conservation of the species.

**cultural landscape** – a geographic area, including both cultural and natural resources and the wildlife and domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.

**cultural resource** – cultural resources include archeological sites; historic sites, buildings, and districts; cultural landscapes; and traditional cultural properties.

**Department of the Interior manual (DM)** – the compilation of policies, procedures, and guidelines governing operations of the various bureaus of the Department of the Interior.

**drilling fluid ("mud")** – circulating fluid, one function of which is to force cuttings out of the wellbore and to the surface. While a mixture of clay, water, and other chemical additives is the most common drilling fluid, wells can also be drilled using air, gas, or water as the drilling fluid.

**directional drilling** – intentional deviation of a wellbore from the vertical (90 degrees). Although wellbores are normally drilled vertically, it is sometimes necessary or advantageous to drill at an angle from the vertical.

**dry hole** – any well incapable of producing oil or gas in commercial quantities. A dry hole may produce water, gas, or even oil, but not enough to justify production.

**effects** – see “impacts”

**endangered species** – any species which is in danger of extinction throughout all or a significant portion of its range.

**environmental assessment (EA)** – a concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact. An EA includes a brief discussion of the need for a proposal, the alternatives considered, the environmental impacts of the proposed action and alternatives, and a list of agencies and individuals consulted.

**environmental impact statement (EIS)** – a document prepared to analyze the impacts on the environment of a proposed project or action and released to the public for comment and review. EISs are prepared when there is the potential for major impacts on natural, cultural or socioeconomic resources. An EIS must meet the requirements of NEPA, CEQ, and the directives of the agency responsible for the proposed project or action.

**Executive Orders, memoranda, or proclamations** – regulations having the force of law issued by the President of the United States to the Executive branch of the federal government.

**Federal Register** – daily publication of the National Archives and Records Administration that updates the Code of Federal Regulations, in which the public may review the regulations and legal notices issued by federal agencies.

**federally owned and controlled lands** – land that the United States possesses fee title through purchase, donation, public domain, or condemnation. It also includes land that the United States holds any interest, such as a lease, easement, rights-of-way, or cooperative agreement.

**federally owned and controlled waters** – all surface waters in the boundaries of a National Park System unit without regard to whether the title to the submerged lands lies with the United States or another party.

**floodplain** – the lowland and relatively flat areas adjoining inland and coastal waters including floodprone areas of offshore islands, and including at a minimum, that area subject to temporary inundation by a regulatory flood.

**flowlines and gathering lines** – lines or pipelines that transport petroleum and natural gas from the wellhead to storage, treatment or transportation facilities.

**gas** – any fluid, either combustible or noncombustible, which is produced in a natural state from the earth, and which maintains a gaseous or rarefied state at ordinary temperature and pressures (36 CFR §9.31(m)).

**geophysical exploration** – geophysical exploration consists primarily of 3-D seismic operations and typically involves selective cutting of vegetation along source and receiver lines, drilling shotholes along source lines, placing explosives at the bottom of each shothole, placing cables and other recording equipment along receiver lines, detonating explosives, and recording the data generated from the soundwaves.

## GLOSSARY

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**hydrocarbons** – organic compounds consisting of hydrogen and carbon, such as petroleum, crude oil or natural gas, whose densities, boiling points, and freezing points increase as their molecular weights increase. The smallest molecules of hydrocarbons are gaseous; the largest are solids. Petroleum is a mixture of many different hydrocarbons.

**impacts** – the likely effects of an action upon specific natural, cultural, or socioeconomic resources. Impacts may be beneficial, or adverse and direct, indirect, and / or cumulative.

**lease** – a legal document executed between a landowner, as lessor, and a company or individual, as lessee, that grants the right to develop the premises for minerals or other products.

**management policies** – the *National Park Service Management Policies* set the basic service-wide policy of the National Park Service. They provide the overall foundation, set the framework, and provide direction for management decisions within the NPS. The management of the National Park System and NPS programs is guided by the U.S. Constitution, public laws, proclamations, executive orders, rules and regulations, and directives of the Secretary of the Interior and the Assistant Secretary for Fish and Wildlife and Parks. Other laws, regulations, and policies related to the administration of federal programs, although not cited, may also apply.

**mitigation** – “Mitigation” as defined in NEPA (40 CFR 1508.20), includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact of repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

**National Park system** – the total sum of the land and water now and hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational, or other purposes.

**natural floodplain values** – attributes of floodplains which contribute to ecosystem quality, including soils, vegetation, wildlife habitat, dissipation of flood energy, sedimentation processes, ground water (including riparian ground water) recharge, etc.

**natural gas** – highly compressible, highly expandable mixture of hydrocarbons having a low specific gravity and occurring naturally in a gaseous form. Besides hydrocarbon gases, natural gas may contain appreciable quantities of nitrogen, helium, carbon dioxide, and contaminants.

**oil** – any viscous, combustible liquid hydrocarbon or solid hydrocarbon substance easily liquefiable on warming, which occurs naturally in the earth, including drip gasoline or other natural condensates recovered from gas without resort to manufacturing processes.

**operations** – "all functions, work and activities within a unit in connection with exploration for and development of oil and gas resources." (36 CFR §9.31(c)). Operations include, but are not limited to:

- reconnaissance to gather natural and cultural resources information;
- line-of-sight surveying and staking;
- geophysical exploration;
- exploratory drilling;
- production, gathering, storage, processing, and transport of petroleum products;
- inspection, monitoring, and maintenance of equipment;
- well "work-over" activity;
- construction, maintenance, and use of pipelines;
- well plugging and abandonment;
- reclamation of the surface; and
- construction or use of roads, or other means of access or transportation, on, across, or through federally owned or controlled lands or waters.

**operator** – person(s) who may have rights to explore and develop nonfederally owned oil and gas in NPS units, including:

- owners: individuals, corporations, local and state governments, Indian tribes (when the tribe owns the oil and gas in fee)., etc.;
- lessees: individuals or corporations that lease oil and gas from the owner; and
- contractors: individuals or corporations under contract with the owner, lessee, or operator.

**permeability** – the capacity to transmit fluids or gases through soil or rock materials; the degree of permeability depends upon the size and shape of the pore spaces and interconnections, and the extent of the interconnections.

**plan of operations** – information submitted by an operator describing how proposed oil and gas operations would be conducted in a unit of the National Park System pursuant to the NPS's Nonfederal Oil and Gas Rights Regulations, 36 CFR 9B, and containing information requirements pertinent to the type of operations being proposed (36 CFR §9.36(a) through (d)).

**practicable** – capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of the pertinent factors such as environment, cost, or technology.

**production** – phase of mineral extraction where minerals are made available for treatment and use.

**Public Law** – law or statute of the United States.

**reclamation** – the process of returning disturbed land to a condition that will be approximately equivalent to the pre-disturbance condition terms of sustained support of functional physical processes, biological productivity, biological organisms, and land uses.

## GLOSSARY

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**recovery plan** – plan required for each listed threatened/endangered species and generated by a task force under the leadership of the U.S. Fish and Wildlife Service. The plan describes the specific management actions necessary to restore the threatened or endangered species to recovery status, including the estimated cost and time involved. The FWS coordinator oversees implementation of the plan.

**Regional Director** – chief decision-maker in each of the seven regions of the NPS.

**regulations** – rules or orders prescribed by federal agencies to regulate conduct, and published in the CFR.

**regulatory floodplain** – specific floodplain which is subject to regulation by Executive Order 11988, “Floodplain Management,” and the NPS’s Floodplain Management Guideline (#93-4). For Class I Actions, the Base Floodplain (100-year) is the regulatory floodplain; for Class II Actions, the 500-year return period floodplain is the regulatory floodplain; for Class III Actions, the Extreme floodplain is the regulatory floodplain.

**revegetation** – reestablishment and development of self-sustaining plant cover. On disturbed sites, this normally requires human assistance, such as seedbed preparation, reseeding, and mulching.

**seismic hole or shothole** – any hole drilled for the purpose of obtaining geophysical information to be used in the exploration or development of oil, gas, or other mineral resources. Explosives are placed in the shothole, are covered with soil, and are detonated to generate a seismic wave. This information is processed by a computer to generate a image of the subsurface geologic conditions.

**shut-in well** – an oil and gas well in which the inlet and outlet valves have been shut off so that it is capable of production but is temporarily not producing.

**split estate** – situation where the mineral estate is owned or controlled by a different party than the owner of the land surface in the same area.

**Superintendent** – senior on-site NPS official in a park. The superintendent works closely with his/her staff to ensure protection of park resources and values during development of nonfederal oil and gas in units of the park.

**taking** – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

**threatened species** – any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

**United States Code (USC)** – the systematic collection of the existing laws of the United States, organized under 50 separate titles. The citation 16 USC refers to section 1 of title 16.

**vertical drilling** – drilling of a well vertically (90 degrees) to reach a target zone straight underneath the surface location.

**wetlands** – lands that are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. (Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et al.* 1979))



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